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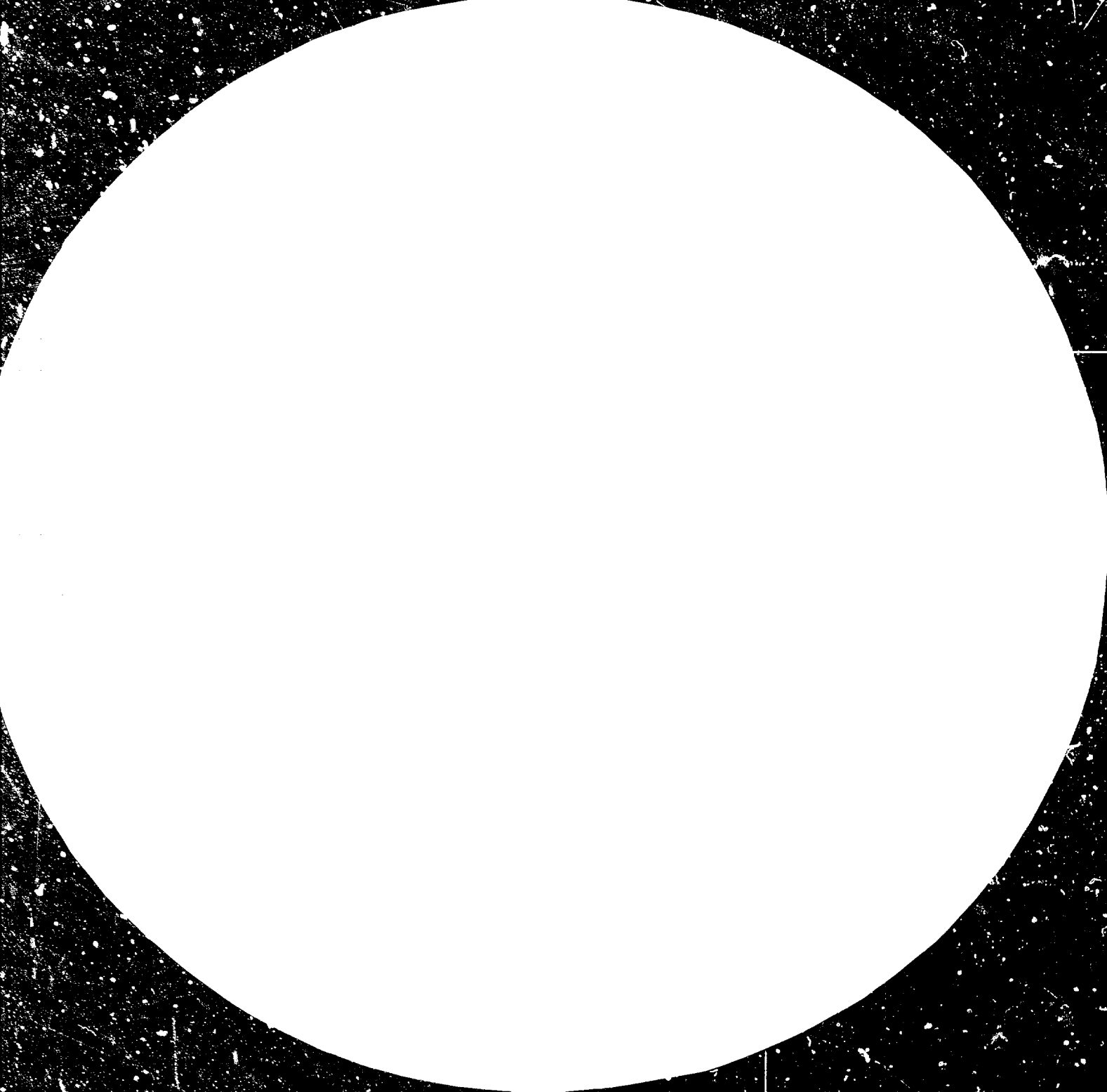
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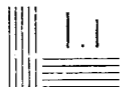
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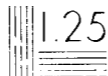
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Distr.  
LIMITED

UNIDO/PC.50 /Rev.1  
5 May 1983

UNITED NATIONS  
INDUSTRIAL DEVELOPMENT ORGANIZATION

ENGLISH

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UNIDO MODEL FORM OF  
AGREEMENT FOR THE LICENSING OF PATENTS  
AND KNOW-HOW IN THE PETROCHEMICAL INDUSTRY,  
INCLUDING ANNEXURES,  
AN INTEGRATED COMMENTARY  
AND ALTERNATIVE TEXTS OF SOME CLAUSES\*

Prepared by  
Negotiations Branch, Division of Policy Co-ordination

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V.83-55130

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## PREFACE

1. The First Consultation Meeting on the Petrochemical Industry in Mexico City, 12 to 16 March 1979, recommended that UNIDO prepares (a) a model form of agreement for the licensing of patents and know-how in the petrochemical industry and (b) a set of guidelines on its use. The First Consultation considered the scope of such a Model Form of Licensing Agreement and provided guidance to the UNIDO secretariat on a number of specific points that should be included.<sup>1/</sup>
  
2. The UNIDO secretariat prepared a First Draft of the UNIDO Model Form of Agreement and presented it to the Second Consultation on the Petrochemical Industry in Istanbul, Turkey, 22 to 26 June 1981. The Second Consultation established a working group which discussed the First Draft in detail and recommended that:<sup>2/</sup>
  - (a) The UNIDO secretariat should revise the first draft of the Model Form of Licensing Agreement taking full account of the comments made at the Working Group and include a much more extensive integral commentary on the text including, where necessary, alternative texts;
  - (b) Thereafter, UNIDO should convene a meeting of experts selected with due regard to equitable geographical distribution, to review the new draft with a view to preparing a version expressing both views, with a balanced presentation of the views, for distribution to all member countries and participants at the Consultation, and for review at the next Consultation if so requested by the Industrial Development Board;
  - (c) UNIDO should further examine the potential losses faced by the purchaser of petrochemical plants in the event of process defects and consider how those risks might be better dealt with by insurance and taken into account in the licensing agreement and plant construction contracts and inform member countries and participants at the Consultation as well as report to the next Consultation on the action taken.
  
3. The Second Draft of the Model Form of Licensing Agreement was prepared taking into account the detailed comments made at the Second Consultation. An international group of experts was convened in Vienna from 28 February to 4 March 1983 to review the second draft and the comments received and to complete this Model Form of Licensing Agreement.

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1/ Report of the First Consultation on the Petrochemical Industry, Mexico City, 12-16 March 1979, ID/227.

2/ Report of the Second Consultation on the Petrochemical Industry, Istanbul, Turkey, 22-26 June 1981, ID/273.



## INTRODUCTION

### Background to Licensing Agreements

4. Licensing Agreements are one of the most important items in the co-operation between developing and developed countries in the field of industry.

5. Successful licensing arrangements must ensure that both parties gain substantial advantages. If the benefits are unbalanced, the disadvantaged party is unlikely to devote its best efforts to the arrangement over the long period covered by a licensing agreement. Every effort must therefore be made to ensure that the agreement is reasonable for both parties and brings mutual benefits.

6. The view is often advanced in developing countries that once a process or product has been developed, it costs virtually nothing to transfer it to a LICENSEE. However, this is not the case. Successful technology transfer to a developing country requires detailed engineering documentation, extensive training, assistance in start-up and operation of the plant and marketing of its products. This costs money. In addition to this, the supplier of technology expects some return on the research and development programme which developed the technology and proved its effectiveness in a commercial plant.

7. On the other hand, in many cases, complaints have been presented by developing countries who felt they were charged license fees far above their real value, deprived of the technical services necessary for the successful realization of a project or provided with inadequate training arrangements.

8. So mutual understanding and respect is necessary to arrive at an agreement. In this general situation, the position in the petrochemical industry is even more complicated.

### Licensing in the Petrochemical Industry

9. The main specific aspects of licensing in the petrochemical industry are:

(a) The license provides the right to use the LICENSOR's process to manufacture a specific product(s); to implement it, a new plant must be built involving a large capital expenditure by the LICENSEE;

(b) The LICENSEE incurs considerable risks because a petrochemical plant is not flexible and is usually designed only to utilize a particular process and produce only the product(s) foreseen.

10. In the petrochemical industry, with few exceptions, it is the big manufacturing companies that have the financial and intellectual capacity to develop new processes. Hence most LICENSORS obtain only a few per cent of their income from licensing and will engage themselves in licensing only if they judge it worthwhile. This means that the LICENSEE can expect that the LICENSOR will try to limit his obligations in terms of performance guarantees and total liabilities under the Agreement. The LICENSOR will also try to limit his engagement to provide technical assistance because he must often detach the best specialist who otherwise would be working either on new process developments or production. However it is also in the interests of the LICENSOR to provide a sufficiently high level of assistance to ensure successful implementation of the transferred technology.

11. The LICENSEE, on the other hand, tries to obtain the maximum possible obligations from the LICENSOR. LICENSEES in developing countries, in particular those spending public funds, must take every possible step to ensure that the plant operates successfully and to be properly compensated if it does not. They need more extensive training arrangements and technical assistance than LICENSEES in industrialized countries.

### The Scope of the UNIDO Model Form

12. The UNIDO Model Form of Licensing Agreement covers only the grant of the right to use the LICENSOR's patents and know-how and the provision of the Process Engineering Design Package and related services. It is assumed that the detailed engineering of the plant and its construction will be the subject of a separate contract. However, in order to have the best chance

of obtaining Performance Guarantees, the UNIDO Model Form provides for the LICENSOR to undertake to check the most critical parts of the detailed engineering of the Plant.

13. There are three ways in which a petrochemical plant can be built:

(a) Purchase of a complete plant from a Contractor with the LICENSOR as his sub-contractor;

(b) Separate contracts for (i) the license and basic engineering; and (ii) for detailed engineering, procurement, erection and start-up of the plant;

(c) Purchase of the license and construction of the plant by the LICENSEE himself.

14. The first approach uses a form of contract for which UNIDO has already prepared model forms. <sup>1/</sup> In this case, the Purchaser has only one supplier who alone is responsible for the design, engineering, erection and performance of the Plant. The contract value is much higher. The Contractor is therefore able to accept bigger responsibilities and more serious consequences in the event that he does not fulfil his contractual obligations. Nevertheless, to minimize the risks of the Purchaser, a well-proven process and a reputable Contractor, preferably with previous experience of the licensed process, must be chosen. This type of approach is suitable for the production of basic petrochemicals such as ethylene but is not applicable to most other petrochemical processes.

15. The licensing agreement required for the second and third approach is the subject of the present paper. The second approach has the advantage for the Purchaser that he can select the most suitable process and the most suitable Contractor independently, he is less influenced by the cost and conditions of the license in selecting the most suitable process, the subsequent purchase of the plant can be based on a more detailed cost evaluation and his technical staff obtain an in-depth knowledge of the process and the equipment necessary for its implementation.

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<sup>1/</sup> The UNIDO Model Form of Turnkey Contract for the construction of a Fertilizer Plant and the UNIDO Model Form of Cost Reimbursable Contract for the Construction of a Fertilizer Plant, UNIDO/PC.25 and UNIDO/PC.26, and the Guidelines for their use, UNIDO/PC.40 and UNIDO/PC.41, respectively. A separate semi-turnkey contract involving the purchase of complete plant and equipment, but with Civil Engineering and Erection being undertaken by the Purchaser, has also been prepared by UNIDO for the Fertilizer Industry.

16. The disadvantage of this approach is that because the LICENSOR and the Contractor are each responsible to the Purchaser, his involvement is greater and his own staff's skill and knowledge becomes of paramount importance. This disadvantage could be offset by the appointment of an independent consultant by the LICENSEE. This solution places a higher burden on the LICENSOR who must provide all the explanations and clarifications that the Contractor may need.

The Type of Licensing Agreement chosen for the Model Form

17. The UNIDO Model Form has been drafted as a comprehensive text suitable for purchasing technology for a large plant. In simpler cases, the LICENSEE may be prepared to settle for a simpler agreement which provides less in the way of guarantees and technical services.

18. There are many different types of Licensing Agreement but the most important distinguishing features are as follows:

- (a) Method of payment; lump-sum or running royalties or a combination of these methods;
- (b) The extent to which the LICENSOR is involved in the detailed engineering of the plant which is usually the responsibility of the Contractor;
- (c) The extent to which the rights to manufacture and sell the product are granted exclusively to the LICENSEE;
- (d) The extent to which training is provided by the LICENSOR.

19. The type of agreement adopted for the UNIDO Model Form has been prepared on the following assumptions:

- (a) Payment will be in the form of a lump-sum;
- (b) The LICENSOR will provide the basic engineering in the form of a Process Engineering Design Package and will assist the LICENSEE by reviewing the detailed engineering of the Plant and assist at its start-up;
- (c) The LICENSEE obtains a non-exclusive, non-transferable License for production in his country and for sales to some but not necessarily all other countries of the world;
- (d) The LICENSOR will provide a comprehensive training programme for the LICENSEE's staff to operate the plant.

20. The other main assumptions are:

- (a) The Process has been commercially proven and is therefore unlikely to be defective;
- (b) The LICENSOR has a patent or patents and/or proprietary Know-how on the Process which can be licensed in the LICENSEE's country;
- (c) The LICENSEE will appoint a Contractor who is independent of the LICENSOR to undertake the detailed engineering of the Plant; the appointment of the Contractor will require the LICENSOR's agreement;
- (d) The LICENSOR and LICENSEE accept a continuing obligation to exchange information on improvements in the Process.

The Structure of the UNIDO Model Form

21. The main Articles of the Agreement are as follows:

1. Definitions
2. Definition of the Plant and the Process
3. Obligations of the LICENSOR
4. Obligations of the LICENSEE
5. Co-ordination of the Work
6. Training of the LICENSEE's personnel
7. Patent Infringement
8. Contract Price and Terms of Payment
9. Duration of the Agreement
10. General Conditions
11. Miscellaneous Provisions

22. The UNIDO Model Form of Licensing Agreement is expected to be suitable for the licensing of different types of petrochemical products. Articles in the main body of the Licensing Agreement therefore include all the general conditions which will be needed in most licensing agreements.

23. The contents of the Annexures to a Licensing Agreement will be specific to the Process licensed and the Product to be produced by the Plant. For this reason only the main contents of these Annexures have been outlined;

however, Annexures 2, 3 and 11 have been elaborated for two products - polypropylene and a vinyl chloride monomer (VCM) - suggested by the First Consultation (ID/227, para. 52).

The Purpose of the UNIDO Model Form

24. The LICENSEE should first select the best process for manufacturing the product in his conditions because the selection of technology is nearly always much more important than the terms and conditions on which the License is obtained. Normal practice is for the LICENSEE to invite offers from a number of potential LICENSORS which can then be evaluated from a technical and economic point of view. It should be recognized that the LICENSOR offering the best guarantee does not necessarily offer the best technology. Once a process is selected on the basis of one of those offers, detailed negotiations with the LICENSOR can begin to obtain the best possible terms and conditions from this LICENSOR.

25. The drafting of a licensing agreement is not normally started until after the major points to be negotiated have been settled. In many cases, the LICENSOR produces the first draft of the Licensing Agreement, which takes into account mainly the terms and conditions he has granted earlier to other LICENSEES.

26. Where the LICENSEE has considerable experience, the LICENSEE may have his own proposals and counter-proposals which he seeks to include in the Licensing Agreement. However, only a few developing countries have such experience in the petrochemical industry. This is where the UNIDO Model Form of Licensing Agreement may be used and reference to the WIPO Guide<sup>1/</sup> will be helpful.

27. The UNIDO Model Form has been prepared with a view to assisting LICENSEES in developing countries to draft and negotiate a licensing agreement that takes into account their interests. They are particularly concerned (a) that the LICENSOR is fully involved until the Plant has passed a rigorous Performance Test and (b) that the LICENSOR provides extensive training and continuing assistance.

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1/ See reference number (1) on page 23.

28. The UNIDO Model Form takes into account the views of representatives of LICENSORS. Where they have advised the UNIDO secretariat that the UNIDO text departs from current licensing practice, the fact is either noted in the commentary and/or an alternate text is provided that corresponds more closely to current licensing practice. Where considered essential, two alternative texts A and B are included in the main Contract. Other alternative possibilities and commentary are presented on the page opposite the relevant Article, for easy reference.

29. As a result the UNIDO Model Form, with the alternate texts and commentary, may be used as a guide to what the two parties might include in the Licensing Agreement. The Model Form should be used flexibly and not in a rigid manner. In no circumstances should it be expected that a Licensing Agreement correspond exactly to the proposed Model Form; there will always be many points of deviation. The final text of an agreed Licensing Agreement signed by the two parties will take account of the particular features of the Process, their respective interests and the actual conditions pertaining at the time the Agreement is negotiated.

30. The reader will observe that in drafting the UNIDO Model Form, it has not been possible in all cases to reach a compromise between the essentially different points of views of the LICENSOR and the LICENSEE. Such compromises can be better reached when negotiating a real contract when the two parties have an interest to come to an agreement since one will sell the license and the other will buy it.

31. It is hoped that the UNIDO Model Form will:

- (a) Create a better understanding by each party of the other party's point of view and interests;
- (b) Inform LICENSEES in developing countries of the main elements of licensing practice; and
- (c) Thereby facilitate the negotiation of successful licensing agreements in the petrochemical industry.

32. Successful licensing requires good faith by each partner in the other. Whatever is written in the agreement, real co-operation depends on a sustained attitude of goodwill, mutual respect and a co-operative spirit.

PREAMBLE

THIS AGREEMENT is made this (Day, Date and Year)  
and entered into between

THE LICENSEE (Legal Name of Licensee)

having its registered office at (Place)

with its Principal Place of Business at (Place)

and hereinafter referred to as the LICENSEE which expression shall, unless repugnant to the context or contrary to the meaning thereof, include its successors of the one part, and

THE LICENSOR (Legal Name of Licensor)

having its registered office at (Place)

with its Principal Place of Business at (Place)

and hereinafter referred to as the LICENSOR which expression shall, unless repugnant to the context or contrary to the meaning thereof, include its successors of the other part.

WHEREAS

the LICENSOR has developed a process hereinafter referred to as the Process to manufacture Product and has accumulated know-how related to the use of the Process in manufacturing plants.

WHEREAS

the LICENSOR owns and maintains patents on the Process and has the right to grant to others the License to apply the Process.

WHEREAS

the LICENSEE wishes to install at (Place, Plant Site) facilities for the production of (quantity) metric tonnes per day of Product, hereinafter referred to as the Plant.

WHEREAS

the LICENSEE wishes (a) to license the patents of the LICENSOR relating to the Process (hereinafter referred to as the Applicable Patents) in (Name of Country) on non-exclusive basis, (b) to obtain the services of the LICENSOR for the supply of the Process Engineering Design Package and related technical information and services sufficient to design, engineer and build the Plant, and (c) to obtain certain other services related to the construction and operation of the Plant.

WHEREAS

the LICENSOR is willing to grant the License and undertake these services, and hereby agrees to do so on the terms and conditions specified in this Agreement.

and NOW THEREFORE

IN CONSIDERATION of the premises and mutual covenants herein contained, it is agreed by the parties hereto as follows:

- 1/ Preambles can vary in form in different countries and under different laws.
- 2/ The Product to be covered by the License.



Commentary

The purpose of this introduction to the Agreement is:

- (a) to ensure that the Agreement is concluded between the authorized parties; and
- (b) to describe the basis of the Agreement and spirit in which it was concluded by the two parties.

It is of vital importance that the description of the two parties is accurate and correct. All communications will be sent to the addresses given here.

The recitals ("whereas" clauses) record the general basis of the Agreement and as such may help persons who implement the Agreement but were not involved in its drafting to understand what the two parties intended at the time of signing the Agreement.

The contents of the "whereas" clauses must be described again in the Agreement proper. In this connection, care should be taken to see that the recitals are (a) accurate and (b) do not conflict with the Agreement proper.

The recitals are drafted for the case where the LICENSOR owns the patents and has accumulated know-how to supply the LICENSEE. The text will need to be changed in cases where, for example,

- (a) the LICENSOR grants patents which he does not own, or
- (b) licenses a Process which is not yet proven on a commercial scale, etc.

If the Process has a registered name, this name may replace the words "a process" in the third paragraph and the words "the process" in subsequent references.

ARTICLE I

DEFINITIONS

In this Agreement, the following expressions shall have the following meanings assigned to them in this Article.

- 1.1 "Agreement" shall mean this Licensing Agreement together with Annexures entered into between the LICENSOR and the LICENSEE for the granting of the License to use the Process, together with all of the documents to which reference has been made in the Agreement documents, including such amendments and/or changes made to those documents by mutual agreement between the parties.
- 1.2 "LICENSOR" shall mean the party named as such in this Agreement or his successor or permitted assigns.
- 1.3 "LICENSEE" shall mean the party named as such in this Agreement or his successor or permitted assigns.
- 1.4 "Applicable Patents" shall mean the patents and patent applications relevant to the Process owned or controlled by the LICENSOR as the case may be, as defined in Annexure 1.
- 1.5 "Approval" shall have the meaning ascribed to it in Article 11.8.
- 1.6 "Basic Design Data" shall mean the information provided by the Licensee as prescribed in Annexure 6.
- 1.7 "Commercial Production" shall mean the continuous production of specification grade Product at the rate of ( ) for ( ) days.
- 1.8 "Confidential Information" shall mean the Confidential Information defined as such in Article 4.4.
- 1.9 "Contractor" shall mean the engineering organization(s) appointed by the LICENSEE in agreement with the LICENSOR to undertake detailed engineering and erection of the Plant based on the Know-how.
- 1.10 "Days" shall mean calendar days.
- 1.11 "Effective Date" shall mean the date on which this Agreement shall come into effect in accordance with the provisions of Article 9.1.
- 1.12 "Expanding the Capacity" shall mean an increase in capacity of the Plant in excess of the nameplate capacity consequent on the installation of additional items of major equipment or replacement of major items of equipment by equipment of larger capacity.

Commentary

The purpose of this Article is to define the key words used in the Agreement so that

- (a) their meaning is clear and unambiguous and
- (b) detailed technical concepts such as "the Process" do not have to be repeated each time the concept is used.

A word that has been defined in Article 1 starts with a capital letter in subsequent Articles of the Agreement.

1.1 It is normal practice in the field of licensing to use the word "Agreement" and not "Contract" which is used for Construction of the plant.

1.6 Less experienced LICENSEES may not be able to provide by themselves all the information required in Basic Design Data; for this purpose, they may obtain assistance either from the LICENSOR or Contractor or from an independent consulting organization.

1.9 As explained in the commentary on the Preamble (page 12 above), the UNIDO model form of licensing agreement has been drafted for the case where the LICENSOR is independent of the Contractor. Examples of contracts to build a chemical plant (but which would need modification for use for petrochemicals) that incorporate provision of the license can be found in the two UNIDO model forms of contract for the construction of a fertilizer plant (on (i) a turn-key and (ii) a cost reimbursable basis) discussed by the Second and Third UNIDO Consultations on the Fertilizer Industry (Nov 1978 and September 1980) and subsequently approved by an international group of experts in March and May 1981<sup>1/</sup>

1.12 The purpose of this definition is to make "expanding the capacity" a real expansion rather than a minor modification of the plant or process which the LICENSEE may make on his own initiative and hence LICENSOR is not expected to pay additional license fees for an increase in capacity of the Plant arising from and including changes in piping, instrumentation, balancing equipment, catalysts, auxiliary chemicals or additives or operating and maintenance conditions and procedures shall not be considered an expansion of capacity. Some

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1/ See UNIDO documents UNIDO/PC.25 - UNIDO Model Form of Turkey Lump Sum Contract for the Construction of a Fertilizer Plant and UNIDO/PC.26 UNIDO Model Form of Cost Reimbursable Contract for the Construction of a Fertilizer Plant.

- 1.13 "First Basic Engineering Meeting" shall mean the first technical meeting between the LICENSEE and the LICENSOR according to Article 5.1 and Annexure 6, Clause 1.2; if appointed already the Contractor shall also assist.
- 1.14 "First Detailed Engineering Meeting" shall mean the first meeting between the LICENSEE, the Contractor and the LICENSOR following the appointment of the Contractor according to Annexure 6, Clause 2.
- 1.15 "Guarantee Test" shall mean the test operation of the Plant as specified in Article 3.5 to be undertaken for the purpose of demonstrating the Performance Guarantees.
- 1.16 "Improvements" shall mean any modification or refinement of the Process and/or Know-how, whether patented or not, which has been developed or acquired during the period covered by this Agreement, or during the period fixed in the Agreement and which is capable of improving the technical and/or economic characteristics of the Process and hence the quantity of the Product produced.
- 1.17 "Know-how" shall mean all the technical data, information drawings and designs and instructions relevant to the "Process" in the possession of LICENSOR, in commercial use and operated in the LICENSOR's and/or his other LICENSEES's plant(s) at the Effective Date and which LICENSOR is entitled to disclose, embodied in the Process Engineering Design Package which are sufficient to enable an experienced Contractor to undertake the detailed engineering of and construct the Plant and to enable the LICENSEE's personnel to operate the Plant so as to produce product(s) in accordance with the Performance Guarantees.
- 1.18 "Mechanical Completion" shall mean the time when the physical construction of the Plant has been completed, when all necessary tests have been fulfilled, the Mechanical Completion Certificate has been issued and the Plant is ready for Start-up as defined in Annexure 13.

Commentary

LICENSORS may wish to have payment for all increases in capacity and in any case for any increase brought about by the information provided by the LICENSOR to the LICENSEE.

1.15 See Commentary on Articles 3.5.1 and 3.5.2 on pages 32 and 34. Articles 3.5.1 and 3.5.2 describe the test of the Plant to demonstrate the Performance Guarantees. The LICENSOR prepares a report of the test and if this is satisfactory, the LICENSEE issues an acceptance certificate within 10 days of receipt of the Report.

Since such acceptance terminates the LICENSOR's obligations as regards performance of the Plant, it is important for the LICENSEE that the test is comprehensive as regards the parameters of performance and of sufficient duration to demonstrate the Plant's long-run operating capability. The definition of Performance Guarantees (Article 1.19) is therefore of great importance to both parties.

1.16 In some agreements "Improvements" may be restricted to the commercially proven ones. Since both parties have an obligation to disclose "improvements" to the other party, there should not be any difficulty in reaching agreement on this definition (Articles 3.2 and 4.2).

1.17 A clear distinction should be made between the two stages in the transfer of information from LICENSOR to LICENSEE. First, all the information embodied in the Process Engineering Design Package which is necessary to design, erect and start up the Plant, should be delivered not later than the date provided for in the Agreement. In order to give to the LICENSOR the time needed to work out with the necessary care and responsibility the Process Engineering Design Package, it has been assumed that only the latest information on the Process available at the Effective Date can be taken into consideration.

However, the LICENSOR has the obligation to provide under Article 3.2 "Improvements in the Process", the new information related to the process for the whole duration of the Agreement. Thus, during the interval between delivery of the Process Engineering Design Package and start-up of the plant, the LICENSEE will have the opportunity to consider which improvements (if any) can be introduced to the Process and the Plant without causing serious delays in the completion of the Plant and/or undue additional costs and risks.

Some LICENSORS may consider the words "to enable the LICENSEE's personnel to operate the plant" to be not precise enough for each specific case. The two parties should agree on a body of information ("know-how" and training) to be provided for by LICENSOR that will be sufficient for the LICENSEE's purposes.

- 1.18 The conditions that have to be met before the Plant is mechanically complete are described in detail in Annexure 13 (pages 140-141 of this document).
- 1.19 "Performance Guarantees" shall mean the guarantees of performance of the Plant as defined in Article 3.5 and Annexure 11.
- 1.20 "Plant" shall mean the manufacturing facilities to be built by the LICENSEE at a site in (country) using the Process for the production of (Product) from feedstock ( ) at nameplate capacity of ( ) metric tonnes per annum based on (330) operating days per annum.
- 1.21 "Process shall mean the latest commercially proven process developed or acquired and owned by LICENSOR at the Effective Date which is the subject of this Agreement and which is described in detail in Annexure 2.
- 1.22 "Process Engineering Design Package" shall contain the know-how defined above in 1.17 and is described in more detail in Annexure 8.
- 1.23 "Product" shall mean the product(s) of the Plant produced according to Process and of the specifications set forth in Annexure 4.
- 1.24 "Site" shall mean the land upon which the Plant is to be constructed as specified in Annexure 5.
- 1.25 "Specifications" shall mean the technical criteria, definitions and parameters governing the Plant as set out in the Agreement.
- 1.26 "Start-Up" shall mean the date by which the operations of pre-commissioning and commissioning shall have been completed and the Plant(s) commence(s) the production of Product(s).
- 1.27 "Technical Documentation" shall mean the technical documents described in Annexure 6 and Annexure 8.
- 1.28 "tons" shall mean metric tons (tonnes).

Commentary

1.19 The Performance Guarantees are described at the start of Article 3.5 and in Annexure 2. See commentary on Article 3.5.

1.20 The nameplate capacity may not be the same as the guaranteed capacity given in Article 3.5.

1.21 In some cases, the latest process may not always be the most suitable one for the LICENSEE. In this case, the LICENSEE should insist that during the negotiations he be told how the licensed process differs from the latest available process.

1.26 The date should be a firmly fixed date and agreed between LICENSOR and LICENSEE. An alternative definition of start-up could be: "Start-up shall mean the initial operation of the Licensed Plant after having reached the stage of being ready for start-up and upon the introduction of feedstock(s) into the reaction sections of the Plant. The date upon which the Start-up has taken place shall be agreed in writing between LICENSOR and LICENSEE".

ARTICLE 2

DEFINITION OF THE PLANT AND THE PROCESS

Scope of the Plant

- 2.1 The LICENSEE intends to establish a Plant at (town, country) to manufacture specification grades of (Product). The preliminary outline of the Site of the Plant is provided in Annexure 5.
- 2.2 The nameplate capacity of the Plant shall be ( ) metric tons per day of Product and shall be designed to operate at least (330) days per year.
- 2.3 The Plant shall be designed to produce the different grades of Product according to the specifications described in Annexure 4.
- 2.4 The Plant shall be designed specifically to suit the location and feedstock.
- 2.5 The feedstock shall have the specifications detailed in Annexure 11.

Scope of the Process

- 2.6 The Plant shall use the ..... Process ..... as described in Annexure 2 and consisting of the units described in Annexure 3.
- 2.7 The Process covers all the manufacturing facilities between the points where feedstock, other raw materials and utilities enter the Plant and the points at which Product and effluents leave the Plant. The battery limits of the Plant are specified in Annexure 3.



Commentary

The purpose of this Article is to define in detail the licensed plant (the Plant) and the licensed process (the Process). In the petrochemical industry, it is the process that is licensed rather than the product.

2.1 Generally the preliminary outline of the site is made available at the time of the signature of the Agreement (as drafted). If it is not available, the last sentence must be deleted.

2.2 The capacity contained in this Article is the design or nameplate capacity and is the same as contained in 1.4. It is not necessarily the same as the guaranteed capacity - which is the capacity under Article 3.5.

2.4 The feedstock if already known should be specified by the LICENSEE and approved by the LICENSOR. The site is generally specified by the LICENSEE.

2.6 As an example, the following description might be used for a polypropylene process:

..... for the manufacture of polypropylene by catalytic polymerization of propylene; starting with the monomer, ending pelletised polymer; including in addition to the process steps proper, the preparation, separation and recovery sections as well as the preparation of the catalyst mixture.

The Agreement may refer to the registered name of the Process, where one exists.

ARTICLE 3

OBLIGATIONS OF THE LICENSOR

Grant of Patent Rights and Licence

3.1 LICENSOR warrants that he has the right to grant and hereby grants to LICENSEE a non-exclusive licence and right to use the Know-how and the Applicable Patents

(a) to employ all Know-how and technical information necessary for the LICENSEE to design, construct and operate the Plant for the manufacture of Product;

(b) to purchase, acquire, make or have made any equipment, apparatus or other material necessary for the construction and operation of the Plant;

(c) to manufacture in the Plant corresponding to the capacity of the Plant as defined in Article 2.2 and to use and sell the Product manufactured in (country) and to any other country or countries, except to the following countries: .....  
.....

Commentary

3. The purpose of this Article is to list all the obligations of the LICENSOR.

Grant of Patent Rights and Licence

3.1 The clause granting the patent rights and licence can be a separate Article.

The inclusion of the words "non-exclusive" in the Agreement reflects the situation most frequently encountered in the petrochemical industry where there is usually more than one potential LICENSEE of the Process. An "exclusive" licence, which would exclude the establishment of a competing plant using the same process by another LICENSEE, would be more expensive. If an exclusive licence is granted this should include the right to sub-licence. The exclusive licence would generally be exclusive only for the LICENSEE's country and, in some cases, for neighbouring markets.

The Model Form provides for some restrictions on the freedom to sell the Product in all countries of the world. Such market restrictions may be imposed by the LICENSOR

- (a) in those countries where he has already concluded an exclusive licence;
- (b) in other countries where he expects to do so;
- (c) in other countries where for other reasons, he wants to restrict the access of the LICENSEE to the market in the future.

The countries in which the LICENSEE can sell his product should always be agreed upon and clearly specified in the Licensing Agreement. Where access to world markets is restricted, there should be a time limit on the restriction. For a further general commentary, see WIPO Guide, paras. 143-189,<sup>1/</sup> and "UNIDO Guidelines" page 17.<sup>2/</sup>

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<sup>1/</sup> "WIPO Guide" refers to Licensing Guide for Developing Countries, World Intellectual Property Organization, Geneva, 1977, WIPO Publication No 620(E).

<sup>2/</sup> "UNIDO Guidelines" refers to ID/233 - Guidelines for Evaluation of Transfer of Technology Agreements, Development and Transfer of Technology Series No 12.

- 3.1.1 The grant of the licence and right according to Article 3.1 shall not be interpreted to mean an assignment of the LICENSOR's proprietary Know-how and title to the Applicable Patents to the LICENSEE.

Improvements in the Process

- 3.2 The LICENSOR undertakes of his own initiative to make available to the LICENSEE all Improvements in the Process developed or acquired by the LICENSOR and of which he is entitled to dispose for the duration of the Agreement (or, if agreed, a specified period) and specifically:

- (a) to make available, free of charge, all developments and improvements in operating techniques, preventive maintenance and safety measures, and process developments not covered by (b) below applicable to the Plant as well as other relevant data and proprietary information which is made available free of charge by LICENSOR to other licensees of the Process;
- (b) to grant to the LICENSEE, on payment of a reasonable fee and on agreed terms, the rights to use proprietary process developments implemented, or acquired by the LICENSOR, including patented developments, which could result in significant improvement(s) in the capacity, reliability and efficiency of the Plant, and quality of the products.

Commentary

Grant of Patent Rights and Licence (cont.)

3.1 In contrast to the restrictions on sales to certain countries, the UNIDO Model Form is silent on other forms of restriction. Such restrictions are discussed in the WIPO Guide (paras. 318 to 330) but it is best to exclude them altogether.

The LICENSEE should take care not to include in the Agreement any clause binding him on the following points:

- (a) restrictions on the volume of production except when derived from expanding the capacity as defined in Articles 1.19 and 3.7;
- (b) pricing of the Product produced by the Plant;
- (c) sources of supply of raw materials, chemicals, catalysts required for the operation of the Plant;
- (d) sources of spare parts for the equipment in the Plant;
- (e) source of technology for future expansion of the Plant or for new plants established by the LICENSEE.

For Performance Guarantee Tests, some LICENSORS may wish to specify the brands of catalysts to be used; this restriction can be accepted by the LICENSEE.

Improvements in the Process

3.2 The WIPO Guide (paras. 216-239) discusses various alternative definitions of "improvements" in the licensed process but the simple definition given here is most suitable for the petrochemical industry. The principle followed in the UNIDO Model Form is that the obligations of both parties should be the same as regards disclosing improvements (see also Article 4.2 for the obligation of the LICENSEE).

The obligation to make available improvements is generally limited to improvements in commercial use.

3.2.1 The LICENSOR shall inform the LICENSEE in writing or in other appropriate way, such as Exchange Information Meetings among Licensees, of the availability of all Improvements in the Process when they are developed or acquired and applied in the LICENSOR's Plant or Plants of any other Licensee who, in their respective licence agreement, do not explicitly prohibit the LICENSOR such disclosure.

Supply of Technical Documentation and related Services

3.3 The LICENSOR shall supply to the LICENSEE sufficient technical information and know-how related to the Process to enable the LICENSEE to undertake through his Contractor the detailed engineering of the Plant, to construct the Plant, to commission the Plant and to operate the Plant. The documentation to be supplied for this purpose shall include, but not to be limited to:

- (a) the Process Engineering Design Package described in Annexure 8, and
- (b) the other technical information, data and drawings listed in Annexure 6.

3.3.1 The LICENSOR shall ensure that all information required for the detailed engineering of the Plant by the LICENSEE or the Contractor is made available in accordance with the time schedule, place of delivery and number of copies required, as detailed in Annexures 6 and 7. In the event that documents supplied are incomplete or inaccurate and have to be completed or modified, the date of delivery of the documents shall be the date on which such completions or modifications are supplied by the LICENSOR. If any explanation is required by the LICENSEE or the CONTRACTOR, such explanation shall not be unreasonably withheld by the LICENSOR.

Commentary

Improvements in the Process (cont.)

3.2 Some LICENSORS are willing to make available all improvements in the Process on a reciprocal basis without payment. The LICENSOR is obliged to make available without delay all improvements, even during the period between the completion of the Basic Engineering Design Package and the commissioning of the Plant; however, it is the right and responsibility of the LICENSEE to decide whether he uses these Improvements at this late stage in detailed engineering. In this decision he should consider the possible costs and delays induced by the modifications and changes against the expected technical and economic advantages.

3.2(b) The definition of "significant" should be written into the Agreement and could be based on one or more criteria like the following:

- ... per cent increase in capacity
- ... per cent increase in yield
- ... per cent improvement in consumption of utilities
- major improvements in quality of the product.

The same observation applies to "payment of a reasonable fee". "Reasonable" should be defined in the Agreement; for example, no more than fees charged to other licensees.

Supply of Technical Documentation and related services

3.3 It is in the interest of both parties that the LICENSEE should obtain as complete an understanding of the Process as possible. Therefore the LICENSOR should supply sufficient background documentation to the LICENSEE to enable him to acquaint himself thoroughly with all the details of the process.

Hence, the proposed text qualifies the summary of information required with the words "but not to be limited to" .

It is important to specify in as great a detail as possible the obligations of the LICENSOR and hence the items (a) and (b) could be expanded by additional items. In such a case the words "but not limited to" could be deleted.

3.3.1 This is a normal obligation of the LICENSOR and Article 3.6.1 imposes a penalty for late delivery of the documents.

- 3.3.2 The LICENSOR shall arrange for personnel of the LICENSEE and, subject to the approval of the LICENSOR, his Contractor to visit the LICENSOR's plants operating at (Locations) using the Process on agreed occasions. These visits shall be scheduled so as not to interfere with the operation of the plants visited.
- 3.3.3 The LICENSOR shall supply any other information on the Process and Know-how that may be reasonably required by the LICENSEE or his Contractor for checking the process engineering, undertaking the detailed engineering, erection and operation of the Plant.
- 3.3.4 The LICENSOR shall deliver to the LICENSEE, as detailed in Annexure 8, the names of vendors supplying all items of equipment of a proprietary or critical nature which form an essential part of the Process that are listed in Annexure 6.
- 3.3.5 The list of the major items of engineering services which may affect the Performance Guarantees of the Plant are detailed in Annexure 6. These include all the items of detailed engineering which the LICENSOR wishes to approve and those which the LICENSEE requires the LICENSOR to review and approve. The LICENSOR shall review for conformity with the Process Engineering Design Package the detailed engineering design of all the items listed as for such approval in Annexure 6.



Commentary

Supply of Technical Documentation and Related Services (cont.)

3.3.2 This arrangement is important for both the LICENSEE and his CONTRACTOR. In some agreements it may be necessary to specify the obligations of the LICENSOR during such visits; for example: "During such visits the LICENSOR shall provide on request such technical data on the operating plant as may be required to confirm the technical specifications of the Process Engineering Design Package. The words "subject to the approval of the LICENSOR" are added because, in some cases, the LICENSOR may be reluctant to allow a Contractor to visit his plant.

The LICENSEE may find it particularly useful to visit the reference plant, in case the LICENSEE's plant does not meet its guarantee test obligations.

The duration and scope of visits under this Article would normally be specified in the Agreement.

3.3.4 It is recommended that vendors that are to be prequalified for supplying critical items of equipment must demonstrate use of such equipment in a similar plant already in operation. The LICENSEE should request the names of several possible competing suppliers for all critical items of equipment; but in the case, when only one or two possible suppliers are named by the LICENSOR, he may request the LICENSOR to indicate a reasonable price level for such equipment items.

3.3.5 In this clause, the UNIDO Model Form provides for greater LICENSOR involvement in detailed engineering than is normal in current licensing practice and will probably require a higher fee. It also requires the LICENSOR to review for conformity with the Process Engineering Design Package the design of those equipment items and parts that are critical to the Process. In this way the LICENSEE can expect to obtain the maximum guarantees as regards performance of the Plant.

If, however, the Contractor appointed by the LICENSEE requires less assistance than provided for in the UNIDO Model Form (Annexure 6), then the License Fee will be correspondingly reduced. The words "and reviewed for conformity with the Process Engineering Design Package by the LICENSOR" have been added because LICENSORS are unlikely to accept an open-ended obligation to review for conformity with the Design parts of the detailed engineering merely on the request of the LICENSEE. The parts needing review for conformity with the design should be agreed beforehand.

3.3.6 The LICENSOR shall indicate the suppliers of catalysts and other chemicals required for start-up of the Plant and demonstration of the Performance Guarantee Tests and its subsequent operation.

3.3.7 The LICENSOR shall provide competent personnel to instruct and witness the commissioning and start-up of the Plant and the conducting of Performance Tests.

Additional services to be provided against an additional fee

3.4 The LICENSOR shall, upon request by the LICENSEE and within an agreed period provide under separate agreement, and for an additional payment, the services listed below which may be required for the adaptation of the process technology, the operation of the Plant and the marketing of its products:

(the services to be provided should be listed)

Commentary

3.3.6 The LICENSOR should be asked to give a list of the suppliers of such catalysts at the time of the signing of the Contract and the LICENSEE should satisfy himself that the catalysts required would be continuously available.

3.3.7 This Article provides for the LICENSOR having the right and the obligation to provide the necessary instructions, and to check them, from the pre-commissioning of the Plant to the end of the Guarantee Tests. It is of particular importance for the LICENSOR to have the right to issue all instructions during the Guarantee Test period and it is of equal importance for the LICENSEE's management to carry out these instructions. The LICENSOR "witnesses" (and, if necessary, reports to LICENSEE) to ensure that his instructions are carried out.

Additional services to be provided against an additional fee

3.4 This Article should list all the main types of additional services that the LICENSEE might need and which the LICENSOR might agree to provide. Some of the suggested services are:

- (a) assist the LICENSEE in managing the operation of the Plant for the first (...) months after the Performance Guarantee Tests have been successfully demonstrated;
- (b) assist the LICENSEE to develop end-uses for Product, to establish a laboratory where applications of Product can be tested, and to provide technical services to customers to back up sales of the Product in (country);
- (c) permit the LICENSEE to use the LICENSOR's trademark of Product when selling Product produced by the Plant in (country) and in selected markets;
- (d) provide the LICENSEE with supplies of Product from its own plants to assist the LICENSEE to build up a market for Product in (country) from the Effective Date up to the start of commercial production by the Plant;
- (e) depute a competent person to review the operation of the Plant and to advise the LICENSEE on ways of improving or overcoming deficiencies in its operation.

If no additional services are needed by the LICENSEE, Article 3.4 can be deleted.

Article 3.4 will not by itself guarantee that these services will be made available because the terms and conditions negotiated at a later date could be unacceptable to the LICENSEE. Therefore, the additional services required should be made the subject of a separate additional agreement at the same time as the main Agreement.

Performance Guarantees of the Process

3.5 The LICENSOR guarantees that the Plant shall meet the Performance Guarantees listed below during a continuous test run:

(a) The Plant shall produce .... tons per day of Product of specification g: e.

(b) The consumption of raw materials and utilities shall be as follows:

(Guarantees of raw material, steam, power, etc., per ton for each grade of product, according to agreed testing procedures, tolerances and eventual compensations among utility consumptions should be specified).

(c) The Effluents and emissions shall meet the following specifications within the tolerances mentioned:

(specifications of effluents and emissions should be specified).

(d) The application of the Process and the operation of the Plant shall meet the safety and environmental requirements as specified in the Basic Design Data provided by the LICENSEE

provided that:

- (i) the Plant has been designed and constructed in strict accordance with the Process Engineering Design Package, the Know-how and Technical Documentation furnished by the LICENSOR, subject to any changes approved in writing;
- (ii) the LICENSEE provides a constant and adequate supply of the raw materials and utilities as defined in Annexure 11 and employs a catalyst recommended by LICENSOR;
- (iii) the LICENSEE provides the number of trained personnel for the Plant as defined in Article 3.6 and Annexure 10;
- (iv) the Plant is ready for Start-up as specified in Annexure 13 and is free from mechanical defects;
- (v) the test is run within the period specified in Article 3.5.1 and is operated according to the instructions of the LICENSOR.

3.5.1 The first Performance Guarantee Test shall be performed within ..... months from the Mechanical Completion and be demonstrated by means of a ..... hours continuous operation of the Plant during which:

Commentary

Performance Guarantees of the Process

3.5 This is the most controversial Article in the Agreement and most of the negotiations between the LICENSOR and the LICENSEE will focus on its contents and the liabilities for the LICENSOR which it creates.

In most processes, the catalyst(s) used is an essential element of the licensed know-how (patented or not) and to this extent the LICENSOR's advice must be accepted at least for the Guarantee Tests. The UNIDO Model Form does not include an obligation for the continual purchase of catalysts from a single source.<sup>1/</sup>

Clauses 3.5(a), 3.5(b), 3.5(c) and 3.5(d) and 3.5.1 define the parameters of the process which are guaranteed and the methods of determining whether these guarantees have been met. Such guarantees are normally in the interest of both parties and should only be omitted in exceptional cases such as when additional technology is sold for incorporation into an already existing plant. The list of parameters given is an extensive check list not all of which will be achievable in all circumstances. Although the LICENSEE should strive to obtain the best guarantees possible he should not assume that the LICENSOR offering the best guarantee has necessarily the best process. The LICENSEE should ensure that all the parameters on which he seeks a performance guarantee are covered either by guarantees in the Licensing Agreement or the Construction Contract or both (see also commentary on Article 3.6 on page 44).

3.5(a) When more than one grade of product is to be manufactured, the capacity of the Plant for each grade of product should be mentioned and the grade(s) which shall be tested during the Performance Guarantee Test, as well as the tolerances and the quality characteristics being guaranteed, should be specified.

3.5(d) The safety and environmental requirements specified should meet the laws and regulations in force in the LICENSEE's country.

Performance Guarantee Tests

3.5.1 The appropriate duration of the test will depend on the nature of the Process. For demonstrating the Contractor's Performance Guarantees on the construction of an ammonia/urea complex, UNIDO has recommended a duration of 30 days. On the other hand, for demonstrating the LICENSOR's Process guarantees it will usually be appropriate to accept a shorter test run (say, 72-120 hours) provided that it takes place towards the end of a longer continuous Performance Guarantee Test conducted by the Contractor. Many Licensors consider a test run of 48 hours adequate to prove their process and feel that a longer test run only increases the costs without giving the LICENSEE any increased certainty that the plant will operate satisfactorily on the longer term. The test run should be run after the Plant has reached stable operating conditions.

1/ See Catalyst Manual: Guide for Catalyst Users in the Petrochemical and Fertilizer Industries. 2 volumes, (126 and 408 pages); 1976 edited by the Joint UNIDO/Romania Centre, Bucharest (UNIDO ITD/351).

- (a) The Plant produces ..... metric tons of Specification Grade Product.
- (b) The Product when separately collected in each 8-hour shift and analysed in accordance with the procedures contained in Annexure 4 meets the specifications provided for in Annexure 4 during each shift.
- (c) The consumption of raw materials and utilities when aggregated over the test period meet the guarantees provided in Article 3.5(b).
- (d) The effluents and emissions when analysed at regular intervals in each (8) hour shift meet the specifications provided in Article 3.5(c).

3.5.2 The LICENSEE shall prepare a Performance Guarantee Test Report based upon the measurements carried out during the Guarantee Test(s) immediately after completion of the tests, authenticated by the LICENSOR's personnel at site. If the Plant's performance is satisfactory according to Article 3.5, the LICENSEE shall issue to the LICENSOR an Acceptance Certificate within ten (10) days from completion of the Report. The Acceptance Certificate terminates LICENSOR's obligations and liabilities regarding the performance of the Plant.

3.5.3 If the plant does not meet the guarantees laid down in Article 3.5, the LICENSOR, LICENSEE and Contractor shall meet to determine the reasons for this failure. The LICENSOR shall within .... days thereafter advise the LICENSEE on whether changes in operating procedures, modification or replacement of equipment or installation of additional equipment or facilities are required to meet the Performance Guarantees.

3.5.4 If the Performance Guarantees are not met, due to defects in the Process and/or Process Engineering Design Package attributable to LICENSOR, LICENSOR shall at its own expense provide such drawings and/or data as is necessary and to recommend the modifications and rectifications which in its professional judgement are necessary to rectify the defects and thereby to achieve the Performance Guarantees. LICENSOR and LICENSEE shall determine a mutually agreeable schedule to incorporate such changes, modifications or additions to the Plant. The LICENSOR shall bear the expense of design, purchase, delivery and installation of the required equipment necessary to make such changes.

3.5.4.1 The maximum aggregate liability to the LICENSOR for carrying out the modifications shall not exceed (amount).

Commentary

The words "continuous test run" should be clearly defined; in some cases, short interruptions can be tolerated. Since many petrochemicals require extensive analytical procedures, analytical investigation should be kept within reasonable limits. The tolerance limits also should be defined along with the measurement and analytical methods and instruments to be used. Some Agreements may include such details in an Annexure.

3.5.2 The presence of LICENSOR at the test run is often essential and is provided for in both alternative texts. Although absence of the LICENSOR would be acceptable in some simpler cases and save the LICENSEE the expenses associated with his attendance, it is not recommended where the technology is complex. For example, if the process involves a catalyst or any other feature that could be harmed by incorrect operation of the plant, absence of the LICENSOR might become a source of argument over determining the cause of failure to pass the Guarantee Test. It would be useful to have the Contractor associated with the preparation of the Performance Guarantee Test Report, although he would not sign it for purposes of this Contract.

3.5.3 In the case when the Performance Guarantee Test has been unsuccessful, the UNIDO Model Form requires the LICENSOR to prepare a report on how to rectify the Plant.

Who is responsible for "making good" the Plant?

3.5.4 In the UNIDO Model Form, the LICENSOR is made responsible for the cost of executing the work needed to rectify the Plant. The actual rectifications would, however, be normally done by the Contractor. The Contractor may be reluctant to help with this even when being paid by the LICENSOR for the additional work, unless in the Construction Contract the Contractor has been given this obligation by the LICENSEE. Therefore this should be ensured by appropriate Articles in the Construction Contract.

In placing these obligations on the LICENSOR in relation to making good the Plant, UNIDO is adopting the principle stated in the WIPO Guide where in para. 294 it is stated that:

"If the technical requirements (performance guarantees) are not met, the LICENSOR or technology supplier is usually required at his own expenses ... to make changes in the equipment of the Plant supplied by it and conduct future tests in order to enable the guarantee to be met".





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Commentary

3.5.4 In the UNIDO Model Form, the LICENSOR's potential liabilities under this Article are for

- (a) carrying out and bearing the cost of the modifications and changes in the Process Engineering needed to rectify the Plant;
- (b) bearing the cost of replacing equipment that has to be modified or replaced; and
- (c) bearing the costs of the LICENSOR's personnel on the site incurred for these purposes.

It should be recognized that rather than accept such large potential liabilities, the LICENSOR may decide not to offer the License to the LICENSEE. Hence, the LICENSOR's liability has been limited by Article 3.5.4.1 to providing all the designs and data, and for making modifications only up to a fixed maximum liability.

In some cases LICENSORS may even be hesitant to accept any liability for making modifications. A typical Article of this type would be:

- " If the failure referred to in Article ... is due to a cause for which the LICENSOR is responsible, LICENSOR has the option either
- (a) to pay liquidated damages, the payment of which releases the LICENSOR from further liability under this Agreement as far as the Process Guarantee(s) in question are concerned,
  - or (b) to provide at the LICENSOR's expense, as quickly as possible, but within a period of ... months, such drawings and/or data as the LICENSOR deems necessary to ensure that the Process Guarantees will be fulfilled in another test run".

Liquidated damages may be satisfactory to the LICENSEE in cases where the failure to meet the guarantees has been only a small short-fall in capacity and where the short-fall does not reduce the performance of downstream plants.

The provision of drawings alone to rectify the plant is only satisfactory to the LICENSEE if the Contractor undertakes the subsequent work of rectification at his expense and is required so to do in the Contract for Construction of the Plant. Otherwise the LICENSEE will be left in the position of paying extra money to rectify the LICENSOR's mistakes.

3.5.5 If the Performance Guarantees are not met, due to LICENSEE's fault (including the Contractor's fault) LICENSEE shall, through the Contractor, proceed to effect the rectifications which in the professional judgement of LICENSEE but with advice and approval of LICENSOR are necessary to rectify the defects and thereby to achieve the Performance Guarantees. LICENSEE shall bear the expenses of design, purchase, delivery and installation of the required equipment necessary to make such changes.

3.5.6 If the LICENSOR and the LICENSEE do not agree as to the party which is at fault, the LICENSOR shall within ... days recommend changes in operating procedures or provide such drawings or data and suggest such modifications or replacements or equipment that may be required to meet the guarantees laid down in Article 3.5. The LICENSEE or his Contractor shall carry out such modifications or replacements according to a mutually agreed schedule. Failing agreement, the party which is to bear the costs involved shall be decided by Arbitration in accordance with Article 10.4.

Commentary

The extent of the liabilities which the LICENSOR will accept should be negotiated bearing in mind that large potential liabilities may increase the cost of the License itself. In the UNIDO text (Article 3.8), the LICENSOR's liability under Article 3.5 is excluded from the overall limit of his liabilities, and would therefore be unlimited if the limit under Article 3.5.4.1 is not included at this point in the Agreement.

Scope of Liability

Whether the words "attributable to" or similar expression within this and subsequent clauses will be sufficient to determine the exact scope of the liability will depend upon the law applicable to the Contract. Most LICENSORS will want to use wording which makes it clear that their liability only arises if they are at fault. In some circumstances it may be advisable to clarify the words "attributable to" by such words as "fault , negligence and omissions etc."

3.5.5 Some LICENSORS may wish to include a statement that they are relieved of their obligation if the failure of the Plant to pass the first Performance Test is not attributable to them. However, the UNIDO Model Form does not allow them to be relieved until a second Performance Test has been made (Article 3.5.10). It is reasonable to expect that the LICENSOR will continue to help the LICENSEE, but of course at the LICENSEE's expense, up to the point where the second test on the modified plant is made. This is the approach adopted in this Article which leaves the initiative in the hands of the LICENSEE.

3.5.6 This Article meets the situation where both parties cannot agree who is at fault. The functions to be performed by each party are spelled out and if agreement cannot be reached, then resort is made to arbitration (Article 10.4) as to who is to bear costs.

- 3.5.7 The LICENSOR or the LICENSEE, as the case may be, shall in every case keep accurate records of the costs of rectifying any defect(s) in pursuance of this Article and each party shall be entitled to receive copies of the relevant documents.
- 3.5.8 The LICENSEE shall not be required to make any payment to the LICENSOR for the extension of the services of LICENSOR's personnel connected with the Performance Guarantee for any period beyond the first unsuccessful Performance Guarantee Test run if the Plant fails to demonstrate the Performance Guarantees for reasons attributable to the LICENSOR.
- 3.5.9 After completion of the rectification of the defects according to Article 3.5.4, 3.5.5 and/or 3.5.6, a second Mechanical Completion Certificate, if necessary, shall be prepared by the Parties and a Second Performance Test made.

TEXT A

TEXT B

- 3.5.10 In the event that the Plant on the Second Performance Guarantee Test is unable to demonstrate the Performance Guarantees for reasons attributable to LICENSOR, but achieves a performance above the minimum specified below, the LICENSOR shall have the right to pay to the LICENSEE penalties established in the manner set out in Article 3.6 below and thereupon be relieved of his obligations in accord with Article 3.6.
- In the event that the Plant is still unable on the Second Performance Guarantee Test to demonstrate the Performance Guarantees for reasons attributable to LICENSOR, the LICENSOR shall have the right to pay to the LICENSEE penalties established in the manner set out in Article 3.6 below and thereupon be relieved of his obligations in accord with Article 3.6.

Commentary

3.5.8 See reference to liability following ~~comments~~ on Article 3.5.4.

3.5.10 Text A differs from Text B by including the words "but achieve a performance above the minimum specified below". Thus Text A requires the Plant to produce at a certain minimum capacity (95% is suggested) and close to the guaranteed consumption of raw materials. Text B allows the LICENSOR to pay damages and be relieved of his liabilities under this Article.

Where the break-even point of the Plant is high, it would be in the interests of the LICENSEE to insist upon a minimum capacity and efficiency being attained (Text A).

TEXT A

TEXT B  
Not used.

- (a) (95) per cent of the production capacity equivalent to ..... tons/day;
- (b) Consumption of feedstock exceeds the guaranteed level by ( ) per cent;
- (c) Consumption of catalysts, chemicals, steam and power exceeds the guaranteed level by ( ) per cent.

3.5.11 In the event the production of Product during the final Performance Test is below that stated above in 3.5.10, does not meet the specifications set out in Annexure 4 hereof or the consumption of feedstock exceeds the guaranteed figure by ( ) per cent or more and the LICENSOR refuses or is unable to suggest such rectifications to the plant as to meet these conditions within .... months, the LICENSEE shall have the right to rectify the plant. For this purpose, the LICENSEE may approach any other party for advice and know-how on the operation or modification of the plant and the LICENSEE may carry out such modifications of the plant as may be necessary in order to secure production of Product in the quantity of the specification and with consumption of (feedstock) to the guaranteed levels specified in this Agreement. In doing so, the party concerned shall sign a confidentiality agreement with LICENSEE co-extensive with the Confidentiality agreement contained in Article 4.4. The LICENSOR shall be liable to pay for the full cost of the know-how and drawings supplied by the new party and up to the maximum liability provided for in Article 3.5.4.1 for modifications to the equipment.

3.5.12 If, for reasons not attributable to the LICENSOR, the first Performance Guarantee Test has not been carried out within (.....) months of supply of the Process Engineering Design Package, or within (.....) months from the Effective Date, whichever comes later, or after the First Performance Guarantee Test having been unsuccessful, the LICENSEE refuses or neglects to effect the rectifications according to Article 3.5.5 within ..... months from the date of the first unsuccessful Performance Guarantee Test, the obligations of the LICENSOR with regard to Performance Guarantees of the Plant shall become void and the Performance Guarantees shall be deemed to have been fully met.

Commentary

3.5.11 As an alternative the LICENSOR's consent may be required to involve a third party. In this case there should be an obligation for the LICENSOR not to withhold his consent unreasonably.

3.5.12 It is a general rule that all Contracts, whether with LICENSOR or Contractors provide for a cut-off date, after which the obligation to perform guarantee tests is deemed to have expired. The reason is that unused plant may deteriorate in such a way as to affect the possibility of meeting the guarantees. The LICENSEE should therefore be careful to ensure that the Plant is erected on time and any ancilliary plants are ready in time.



3.5.13 If, for reasons not attributable to the LICENSEE, the first Performance Guarantee Test has not been made within the period stipulated in 3.5.12 above, the LICENSOR shall, at a time convenient to both parties assist LICENSEE in the start-up of the Plant at a later date. This will be subject to additional fees and travel expenses, that take account of the increased costs to the LICENSOR, being agreed between the LICENSEE and the LICENSOR.

Penalties

3.6 The LICENSOR shall be subject to a penalty to be paid to LICENSEE

3.6.1 for delay in supplying the Basic Engineering Design Package in accordance with Annexure 7

..... thousand US Dollars for each week of delay.

3.6.2 If the Plant fails to demonstrate the Performance Guarantees set out in Article 3.5 in the last Performance Guarantee Test conducted and subject to the provisions of Article 3.5.10, the LICENSOR shall pay the LICENSEE compensation in the form of penalties arrived at as follows:

- (a) to the extent that production falls short of ..... metric tons within the Performance Guarantee Test period (the quantity guaranteed), the LICENSOR shall pay to the LICENSEE a penalty of .... per every 1 per cent of the deficiency;
- (b) to the extent that consumption of (feedstock) exceeds ..... metric tons per ton of product (the consumption guaranteed), LICENSOR shall pay to LICENSEE a penalty of ..... per every 1 per cent of the excess consumption.
- (c) to the extent that consumption of catalysts, chemicals, steam and power per 1000 kg. of product produced is in excess of the guaranteed quantities, the LICENSOR shall pay to the LICENSEE a penalty worked out as follows:
  - 1. For every ..... excess consumption of (catalysts) a sum of ..... per .....
  - 2. For every ..... excess consumption of (chemicals) a sum of ..... per .....
  - 3. For every ..... excess consumption of steam a sum of ..... per .....
  - 4. For every ..... excess consumption of power a sum of ..... per .....

Commentary

3.5.13 Some LICENSORS may be hesitant to make a binding contractual arrangement to provide personnel at an unknown future date. However, in their own interest they would normally do so, even if a contractual obligation did not exist, unless it became impossible to send such personnel.

Penalties

3.6 Penalties are included in the Agreement as a form of security of performance by the LICENSOR. Although the word "penalties" is used here, in legal terms the amounts due can be considered as "Liquidated Damages" because they are an amount of damages for short-falls in the performance of the plant that were agreed between the parties when the Agreement was signed.

The purpose of Clause 3.6.1 is to penalize the LICENSOR for delays in delivering the Basic Engineering documents.

The purpose of Clause 3.6.2 is to establish the level of penalty for those parameters of the Process which are subject to penalties if the guaranteed performance (Article 3.5) is not achieved.

The parameters listed can be considered as a checklist. In practice, not all of the parameters listed will be subject to penalties because only some of them will be of economic importance to the Process. The selection of those that are important will depend on the data provided by the LICENSOR on the Process. The selection will take into account the parameters that should be guaranteed by the Contractor rather than the LICENSOR. One example is parameters relating to energy consumption because they depend more on the detailed engineering of the Plant than the Basic Engineering provided by the LICENSOR.

The parameters chosen as subject to penalties and their tolerance limits will be negotiated by the parties. See Commentary on Articles 3.5 and 3.5.1.

In the case of the penalties under 3.6.1(c), it is normal to have a clause where penalties for one item can be set-off against improved performance on another one. For this purpose, the unit cost of the utilities should be specified in the contract.

3.6.3 The LICENSEE, when the LICENSOR agrees that the penalties are due, may deduct the amount of such penalties from any payments due to the LICENSOR.

3.6.4 The payment of such penalties shall relieve the LICENSOR only from those specific obligations for which the penalties were paid.

Expanding the capacity of the plant

3.7 In the event LICENSEE desires at any time during the term of this agreement to expand the capacity of the Plant or to set up (erect) additional facilities (Plants) of his own for the production of Product, using the Process and a material part of the Know-how during the term of this Agreement, LICENSEE shall pay to LICENSOR for each extension of ..... tons above the nameplate capacity as defined in Article 2.2 an additional fee at the rate of no more than .... per metric ton of additional capacity. LICENSEE shall pay the extension fee within .... months after the date that the first of the respective agreements with LICENSEE concerning such extension of the capacity has become effective.

3.7.1 Upon receipt of the extension fee, LICENSOR shall grant to LICENSEE for each such extension of capacity of the Plant the same rights under the same conditions as set forth in paragraph 3.1.

3.7.2 All amounts of extension fees due under this paragraph 3.1.1 shall be paid to LICENSOR in the manner and under the conditions as provided in Article .... of this Agreement.

Commentary

Expanding the capacity of the plant

3.7 The purpose of the Article is to establish at the time of signing the Agreement an understanding of the LICENSEE's rights to expand the Plant at a later date.

Clause 3.7.1 which defines the cost of acquiring such a right, should include an escalation clause to take account of inflation. As regards payments schedule, some LICENSORS may require 100 per cent down payment.

Clause 3.7.2 makes it clear that no additional fees are due if production expands as a result of the LICENSEE's own skill in operating or improving the original plant.

The extent of fees to be paid under Article 3.7 will depend upon the country or countries in which additional facilities could be set up by LICENSEE and hence it may be necessary to restrict the applicability of this Article to additional facilities set up in specified countries only.

Article 3.7 does not contain a contractual obligation for LICENSOR to provide personnel for help in establishing or operating such additional facilities. This would be a matter of arrangement at the time that such personnel were required and usually the LICENSOR would supply them on agreed terms and conditions.

In the event that the Plant was expanded or the additional facilities were established using significant improvements made by the LICENSEE, the LICENSEE could ask for a reduction in the fee specified in 3.7.

Liability Limitation

3.8

TEXT A

TEXT B

The LICENSOR's total liabilities under this Agreement shall be limited to ..... per cent of the lump sum fee mentioned in Article 8, with the following exceptions:

The LICENSOR's total liabilities under this Agreement shall be limited to ..... per cent of the lump sum fee mentioned in Article 8.

- (a) liabilities for patent infringement (Article 7);
- (b) liabilities for defaults in Process Know-how and Process Engineering Design Package (Article 3.5).

The LICENSOR's liabilities under 3.8(a) above shall be unlimited.

3.8.1 The LICENSOR shall not be liable for loss of anticipated profits or for any consequential loss or damage arising from any cause. The guarantee certificate shall be deemed to be issued as soon as either the penalties under 3.6 have been paid by LICENSOR or the liability limits under 3.8 have been reached. (Subject to the provisions of Article 3.5.8.) <sup>1/</sup>

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<sup>1/</sup> The words in brackets are to be added only if Text A of Article 3.5.8 is used. Otherwise they can be deleted.

Commentary

Liability Limitation

3.8 The purpose of Clause 3.8 is to limit the LICENSOR's liability under the Agreement. The clause is controversial and requires careful negotiation. The extent to which a LICENSOR is willing to accept liabilities will depend on many factors including the competitive situation with respect to the licensed technology and the level of fees he receives for the License. A LICENSOR with the most competitive technology is likely to insist on a low limit on his overall liabilities under the Agreement.

Alternative approaches to drafting a limit on the LICENSOR's liability under the Agreement include the following:

- (a) The LICENSOR's total liability is limited except for supply of Process Engineering to meet the Performance Guarantees and Patent Indemnity for which his liability is unlimited (Text A), and for plant modifications where it is separately limited (Text A);
- (b) The LICENSOR's total liability is limited to a given percentage of the total fees that the LICENSOR will receive from the LICENSEE (Text B);
- (c) The LICENSOR accepts liability only under the Performance Guarantees and Patent Indemnity clauses and imposes a ceiling on its total liabilities under these clauses;
- (d) The LICENSOR accepts unlimited liabilities.

The approach recommended in Text A gives substantial protection to the LICENSEE in the event that the Plant does not perform for reasons attributable to the LICENSOR and needs to be rectified at the LICENSOR's expense (See Article 3.5.4).

ARTICLE 4

OBLIGATIONS OF THE LICENSEE

Provisions of Basic Design Data for the Plant

4.1 The LICENSEE shall provide and be responsible for the accuracy of the Basic Design Data on which the design of the Plant is to be based. The Basic Design Data shall be transmitted to LICENSOR and discussed at the First Basic Design Meeting, according to Annexure 6.

4.1.1 The first Basic Design Meeting shall be held within ... days of the Effective Date in accordance with Clause 1.2 of Annexure 6.

Improvements in the Process

4.2 The LICENSEE undertakes on his own initiative to make available to the LICENSOR all Improvements in the Process developed or acquired by the LICENSEE and of which he is entitled to dispose for the duration of the Agreement (or, if agreed, a specified period) and specifically

- (a) to make available free of charge to the LICENSOR all developments and improvements in operating techniques, preventive maintenance and safety measures and process development not covered by (b) applicable to the Plant;
- (b) to grant to the LICENSOR, on payment of a reasonable fee and on agreed terms, the rights to use proprietary process developments implemented by the LICENSEE, including patented process developments, which could result in significant improvement(s) in the capacity, reliability and efficiency of the Plant and the quality of the Products.

4.2.1 The LICENSEE shall inform the LICENSOR in writing of the availability of all Improvements as they are developed and applied by the LICENSEE in the Plant.

Commentary

Provision of Basic Design Data for the Plant

4.1 The purpose of this clause is to make it clear that the LICENSEE is responsible for the scope and accuracy of the Basic Design Data on which the LICENSOR bases his Process Engineering Design Package. Since incorrect Basic Data can be the cause of incorrect design of the Plant, it is essential that every effort should be made to provide correct data; should any errors be found, they should be corrected immediately by either the LICENSEE or LICENSOR.

4.1.1 This first Design Meeting is extremely important as all the basic design data is confirmed at this meeting. Since most of the dates in the Agreement for the supply of documents begin from this meeting, a time limit is essential for this meeting.

Improvements in the Process

4.2 This obligation for the LICENSEE is identical to that of the LICENSOR commented on in Article 3.2. There will be a need to describe "significant improvements" as in Article 3.2. In order to promote exchange of information, the LICENSOR will normally ask for rights to give the information received from the LICENSEE, on a reciprocal basis and bound by the same degree of confidentiality, to his other licensees.



Appointment of the Contractor

4.3 The LICENSEE and the LICENSOR shall mutually agree on the appointment of the Contractor to undertake detailed engineering and construction of the Plant.

4.3.1 The Contractor shall be obliged to sign a secrecy agreement before his contract with LICENSEE becomes effective.

Secrecy and Confidentiality

4.4

TEXT A

The LICENSEE shall treat all process and technical information, proprietary know-how, patented processes, documents, data and drawings supplied by the LICENSOR as "Confidential Information" and shall not divulge such Confidential Information to a third party, except when required by law, when the LICENSEE shall inform the LICENSOR in advance. These obligations shall begin with the first supply or disclosure of the confidential information and shall cease (10) years after the date of disclosure and for the Improvements (10) years after the date of their receipt. The LICENSEE shall not utilize the Confidential Information for any purpose other than for completing, operating, repairing, maintaining or modifying the Plant.

4.4.1 The employees of the LICENSEE, the CONTRACTOR and their sub-contractors entrusted with the work relating to the Plant, shall be bound by the same obligations of confidentiality as the LICENSEE.

TEXT B

The LICENSEE shall keep any item of the Know-How, the Process Engineering Design Package, the Applicable Patents, the Improvements, the Basic Design Data, Specifications and Technical Documentation supplied to him by the LICENSEE, strictly confidential and shall not divulge the same to third parties. LICENSEE shall not use such confidential information for any purpose other than for the design, construction, erection, maintenance, operation, repair or modification of the plant.

LICENSEE undertakes to take all steps and measures to insure that these obligations will strictly be met and shall impose corresponding obligations on its employees, the Contractor and the sub-contractors trusted with the work relating to the design, construction or repair of the plant.

These obligations shall begin with the first supply or disclosure of the confidential information and shall cease (10) years after the date of start-up and for the improvements (10) years after the date of their receipt.

4.4.1 Not used.

Commentary

Appointment of the Contractor

4.3 The choice of an experienced and reliable Contractor is essential for the success of the Plant and in the interest of both parties. Usually, the LICENSOR will give a list of the Contractors that have previous experience in building plants using the Process and the LICENSEE will choose one of them. Where a LICENSEE would prefer to select a Contractor having previous experience in its country, the LICENSOR should give due consideration to this preference.

4.3.1 Sometimes the draft of such a secrecy agreement forms an annexure to the Agreement.

Secrecy and Confidentiality

4.4 The purpose of this Clause is to protect the LICENSOR's secret information, usually for the duration of the Agreement. The time limit on confidentiality is very variable, depending on the Process, the competition, the technical and scientific value of the information and on many other factors including legal limitations. Some LICENSORS may be striving to set limits beyond ten years if the Process licensed is a very new one. In some cases this could be as low as 3 years if the process is an older one. The WIPO Guide, paras. 238-283, considers this subject in great detail.

Clause 4.4.1 is implemented by asking the Contractor and his sub-Contractors to sign a secrecy agreement before commencing work. Clause 4.4.1 is void in alternative Text B because it is included in Article 4.4.

TEXT A

TEXT B

4.4.2 Information received from the LICENSOR shall not be deemed Confidential Information when

- (a) it enters the public domain by publication or otherwise;
- or (b) it was in the possession of the LICENSEE at the signing of the Contract;
- or (c) it is made available to the LICENSEE independently by a third party.

4.4.2 The obligations according to Article 4.5 shall not apply, however, to any item of the confidential information for which LICENSEE can prove that

- (a) it was in the possession of the LICENSEE prior to its receipt, without binder of secrecy;
- or (b) is or has become part of the public domain by publication or otherwise through no fault of the LICENSEE;
- or (c) was made available to the LICENSEE without any binder of secrecy from a third party having a bona fide right to disclose the same to LICENSEE.

4.4.3 The LICENSEE shall be authorized without prior approval of the LICENSOR to disclose such part of the Confidential Information received from the LICENSOR to the Contractor and suppliers of equipment and/or sub-contractors and/or insurance companies when such information is absolutely necessary to call for bids or to purchase equipment and/or for the insurance of the equipment and/or the Plant. LICENSEE shall make recipients of confidential information sign appropriate secrecy agreements.

4.4.3 LICENSEE shall be authorized to disclose to the extent necessary those parts of the confidential information to the contractor who is in charge with the designing, and construction of the plant and/or sub-contractors, suppliers of equipment and insurance companies in (country) when and to the extent necessary to prepare bids or to prepare equipment for the plant or to insure the plant, provided LICENSOR has previously concluded a secrecy agreement with such institutions, the stipulations of which are substantially corresponding to Article 4.4.

Commentary

Article 4.4.2 is a fairly standard definition of exceptions to the Confidential Information rule.

The difference between Text A and Text B is that in Text B the onus of proof is put on the LICENSEE and the conditions under which information can be disclosed are much more restrictive.

Article 4.4.3 has alternative texts. Text A includes the words "without prior approval" to give the LICENSEE greater freedom. Text B omits these words because, in the view of some LICENSORS, they unnecessarily dilute the Confidentiality imposed on the LICENSEE.

Text B also requires a secrecy agreement with LICENSOR before disclosing any information, to third parties whereas Text A only requires a standard secrecy agreement with LICENSEE. In most cases LICENSOR will only require a direct secrecy agreement with third parties for special parts of the know-how, which should be identified beforehand.

TEXT A

TEXT B

4.4.4 LICENSEE shall be authorized to communicate to any Government regulatory body such parts of the Confidential Information as may be required by the applicable law relating to the approval or registration of this Agreement or grant license for import of equipment or any other matter pertinent to the setting up of the Plant.

4.4.4 LICENSEE shall be authorized in the same manner as in Article 4.4.3 to communicate the required confidential information to any government agency as may be required by the applicable law relating to the approval or registration of this Agreement or a grant of license for import of equipment or any other matter pertinent to the setting-up of the Plant.

4.4.5 The LICENSEE shall be authorized to disclose to any National Research laboratory contracted by the LICENSEE, part of the Confidential Information received from the LICENSOR, subject to LICENSOR's approval in advance and the recipients of such information being bound by the same obligations of Confidentiality as the LICENSEE. This approval shall not be unreasonably withheld.

Clause 4.4.4 is another reasonable exception to the rule of confidentiality of interest to LICENSEES in developing countries who are likely to need to apply it frequently.

The main difference between Text A and Text B is the words "in the same manner" in Text B which implies that the LICENSOR's prior approval must be requested.

Clause 4.4.5 is more controversial and may not be accepted by the LICENSOR in the case of a relatively new or competitive process.

ARTICLE 5

CO-ORDINATION OF THE WORK

5. LICENSOR shall assist LICENSEE and Contractor in the technology transfer during the preparation of the Process Engineering Design Package and to undertake the detailed engineering, start-up and commissioning of the Plant. The details of the arrangement for co-ordinating the work to be undertaken by LICENSOR, LICENSEE and Contractor are specified below and in Annexure 6 and the time schedule is specified in Annexure 7.

Process Design

- 5.1 Upon completion of each part of the Process Engineering Design Package, LICENSOR shall accept in LICENSOR's Design Office LICENSEE's representatives at the dates, number of days, and number of persons fixed in Annexures 6 and 7. The Contractor, if already selected shall assist at the conferences. For the duration of these conferences, LICENSOR shall provide office accommodation, technical and clerical assistance.

Detailed Engineering

- 5.2 The LICENSEE in his contract with the Contractor shall make arrangements for co-ordinating the work it undertakes with the LICENSOR. The arrangements shall include but not be limited to the arrangements listed in this Article 5 and Annexures 6 and 7.

Commentary

Co-ordination of the Work

5. Normally a LICENSEE will not require help from the LICENSOR for the maintenance of a plant, and where help is required for operation of the Plant after the Performance Guarantee Tests, this should be the subject of a separate Agreement. Therefore the assistance of the LICENSOR is required only for the detailed engineering, start-up and commissioning of the Plant. During the Performance Guarantee Tests the LICENSOR has greater functions, as he will be giving the instructions for the operation of the Plant.

Process Design

5.1 LICENSEES in developing countries should insist on the right to send representatives to the LICENSOR's design office so that they have the opportunity to examine the Process in depth. The LICENSOR's design office may be at LICENSOR's own offices or even at an Engineering company's office.

Detailed Engineering

5.2 The obligation of the LICENSOR to assist in reviewing and approving detailed engineering is important if the Contractor has not had previous experience in the same type of plant.



- 5.2.1 The LICENSEE shall convene within ... days of the Effective Date of the Contract at (Place) in (Country) the First Detailed Engineering Meeting with the LICENSOR and Contractor to discuss and agree on the matters listed in Article 5 and Annexures 6 and 7.
- 5.2.2 In order to assist LICENSEE and Contractor in the detailed engineering of the Plant, LICENSOR shall take part at the design conferences to be held between LICENSEE and Contractor. The place, date, duration, number and qualification of the participants and the scope of each conference shall be agreed upon at the First Detailed Engineering Meeting. At these meetings LICENSOR shall
- (a) give advice and supply information on the Process according to Article 3.3.3;
  - (b) review all the process related detailed engineering designs and drawings that are specified in Article 3.3.5 and Annexure 6 as requiring LICENSOR's review and approval. The conferences shall be held either at Contractor's or LICENSEE's office. The secretarial and clerical assistance shall be given by the host organization.
- 5.2.3 The LICENSEE and the Contractor shall prepare the detailed engineering of the Plant strictly in accordance with the Process Engineering Design Package.
- 5.2.4 The LICENSEE shall notify the LICENSOR of any changes he wishes to make in the Process Engineering Design Package. If in the opinion of the LICENSOR, such changes are likely to prevent the LICENSOR from fulfilling any of his obligations under the Agreement, he shall notify the LICENSEE in writing of the modifications to his obligations that would result and the LICENSEE shall decide forthwith whether or not the changes shall be carried out. If the LICENSEE reconfirms in writing his intention to carry out the changes, then the obligations of the LICENSOR shall be modified to such extent as the LICENSOR specifies.

Commentary

5.2.1 The first detailed engineering meeting (the so-called "kick-off" engineering meeting) is the most important date from the point of view of the Engineering Contract because of this meeting the Contractor is present for the first time. This meeting shall not be confused with the first Basic Design Meeting (Article 4.1) which is only between LICENSOR and LICENSEE (see Annexure 6 for details of all meetings).

Clause 5.2.2(b) requires the LICENSOR's review and approval of the critical parts of the detailed engineering of the Process. This will cost additional money but make it easier for the LICENSOR to agree to the Performance Guarantees required by the LICENSEE in a developing country (Article 3.5). The more the detailed engineering review, the higher the cost; therefore only the essential ones should be reviewed. If the review by the LICENSOR is likely to take time it can be done after the meetings.

5.2.3 This is a necessary condition of the LICENSOR if he is to guarantee performance of the Plant.

5.2.4 LICENSORS will normally expect the design to be frozen at the first design meeting and would be reluctant to give the LICENSEE the right to automatically demand changes thereafter.

5.3 Procurement

LICENSOR shall assist LICENSEE and Contractor in the procurement of the critical items of equipment listed in Annexure 6, and when necessary, take part at the tests and acceptance procedure at the manufacturing plants. The schedule and method of the LICENSOR's participation in the work shall be agreed upon at the First Detailed Engineering Meeting.

5.4 Construction of the Plant

LICENSOR shall assist LICENSEE in the erection of the Plant. For this purpose LICENSOR shall

- (a) at LICENSEE's request give consultation services on questions arising during erection
- (b) inspect the Plant on Mechanical Completion and report to LICENSEE any evident defects which would affect the safe and efficient operation of the Plant and/or its demonstration of the Performance Guarantees.

5.5 Start-up

LICENSOR shall instruct and witness the start-up and Performance Guarantee Test by his delegated personnel in co-operation with the Contractor and LICENSEE.

5.6 LICENSOR's personnel

The LICENSOR shall communicate to LICENSEE the background and experience of the person or persons proposed for all such assignments. No person shall be deputed without the LICENSEE's approval, which shall not be unreasonably withheld.

Commentary

Procurement

5.3 Some LICENSEES in developing countries might require to include this clause. Usually the LICENSOR is not involved in procurement in Licensing Agreements between parties in industrialized countries. In any case, for such services, the LICENSOR may ask for additional payment from the LICENSEE.

Construction of the Plant

5.4 The same comment as for 5.3 above applies.

Start-up

5.5 It is important for the LICENSEE to state that the LICENSOR and not the LICENSEE will give the instructions for the start-up and Performance Guarantee Test, as is done here.

LICENSOR's personnel

5.6 The LICENSOR may require a reciprocal right to approve of LICENSOR's personnel who go for training.

TEXT A

TEXT B

5.6.1 The LICENSEE shall have the right at any time to require the immediate repatriation of any of the LICENSOR's personnel found to be negligent or lacking in competence or guilty of misconduct. In such cases, the LICENSOR shall immediately satisfy himself of the validity of the claim and shall provide a replacement in not less than ..... days. The costs of repatriation and of providing a replacement shall be borne by LICENSOR.

LICENSOR and LICENSEE shall consult each other on questions regarding withdrawal or replacement of any of LICENSOR's personnel delegated by LICENSOR to LICENSEE,

5.6.2 LICENSOR's obligations to depute personnel to the country of the Plant under the Agreement shall be limited to ..... man-days.

Commentary

Clause 5.6.1 Text A allows the LICENSEE to accept only qualified, responsible and serious personnel of the LICENSOR; it is based upon the past experience of a few LICENSEES in developing countries.

Text B does not protect the LICENSEE's position as well as Text A but may be satisfactory to some LICENSEES provided that the last sentence of Text A is added to confirm that repatriation is at the LICENSOR's expense, when his staff are at fault.

The reciprocal obligation regarding the LICENSEE's trainees is found in Article 6.7 where two alternative texts are proposed.

Normally both LICENSOR and LICENSEE should respect the existing social rules and practices in their respective country.

5.6.2 This sub-clause is necessary so that the LICENSOR knows his maximum obligation under the Agreement and limits the demands on his own technical personnel.

ARTICLE 6

TRAINING OF LICENSEE'S PERSONNEL

6. The LICENSOR shall arrange for the training of LICENSEE's personnel in (name of Plants) using the Process. The training shall cover but not be limited to, plant operation, plant maintenance, material handling, quality control, effluent and emission treatment. The LICENSOR shall ensure that the training programme shall fully cover the technology of the Process, the operation, maintenance and control of the Plant. The LICENSEE shall ensure in this connection, that the personnel to be trained shall have the qualifications provided for in Annexure 10.
  
- 6.1 The LICENSOR shall ensure that personnel designated by the LICENSEE be given adequate opportunity to study and acquaint themselves with the Process, safety precautions, operation, quality control of the Product, laboratory procedures, maintenance of the plant, and to discuss plant and laboratory practices and operations with the plant personnel. The LICENSEE's personnel shall be permitted to make notes and sketches of the plant using the Process, and to secure pertinent information as required.
  
- 6.2 The LICENSOR shall provide training for the LICENSEE's personnel for the periods described in Annexure 10.
  
- 6.3 The Training Programme shall be carried out in ..... language, and wherever necessary the interpreters for this purpose shall be provided by ..... The LICENSOR undertakes to supply training manuals and data in the ..... language.
  
- 6.4 All living and travel costs for the LICENSEE's personnel shall be borne by the LICENSEE.

Commentary

Training of Licensee's Personnel

6. This Article is critical to the successful transfer of technology to the LICENSEE and care should be taken in ensuring that it is drafted to cover all the LICENSEE's training requirements. The Plant chosen for training, should be as similar as possible to the Plant of the LICENSEE, and should be owned by the LICENSOR or one of his licensees.

The UNIDO Model Form requires that training programme cover "plant operations, plant maintenance, material handling, quality control and effluent treatment". Other specific aspects of plant operation and management could be added if required, and these could include training in Extension Services, such as product marketing.

During and as an integral part of such training, one or more trainees designated by the LICENSEE and approved by the LICENSOR shall write up the operating manuals for the Plant. They shall be checked and verified by the LICENSOR.

It is important that the programme is designed and checked by LICENSEE and LICENSOR to enable the LICENSEE's personnel to "learn" the technology of the Process, the operation, maintenance and control of the Plant". This is the objective of the programme but results will depend on the suitability of the training outlined in Annexure 10 and the capability and previous experience of the trainees. Hence the LICENSEE is obliged to ensure that the trainees have adequate qualifications to benefit from the training they will receive.

Article 6.1 sets out in broad terms the scope of the training and the rights of the LICENSEE's trainees to take detailed notes in a Plant.

Article 6.2 and Annexure 10 outline who is to be trained and for what periods.

Article 6.3 deals with the language of training and instruction manuals. In some cases, LICENSEE may like to undertake the translation into his own language in order to provide training to his personnel.



6.5 The personnel of the LICENSEE, during the time they are present at the plant of another party, shall be subject to all rules and regulations prevailing on the premises but shall not be considered an employee of the other party.

TEXT A

TEXT B

6.6 The LICENSOR shall have the right at any time to require the immediate repatriation of any of LICENSEE's personnel found to be negligent, lacking in competence or guilty of misconduct. In such cases, LICENSEE shall immediately satisfy himself of the validity of the claim and shall provide replacement in ..... days. The cost of repatriation and of providing a replacement shall be borne by LICENSEE.

LICENSOR and LICENSEE shall consult each other on questions regarding withdrawal or replacement of any of LICENSEE's personnel delegated by LICENSEE to LICENSOR for training.

6.7 LICENSEE will use his best endeavours to retain and use the trained personnel for start-up and operation of the Plant.

Commentary

6.5 Articles 6.5 and 6.6 govern the conduct of the LICENSEE's personnel in the same way as that of the LICENSOR's personnel (Article 5.6.1).

6.6 This is a reciprocal Article to Article 5.6.1.

Article 6.7 is of interest to both parties. It can be implemented by asking each trainee to sign a bond that he will remain in the service of the LICENSEE for .... years after his training.

ARTICLE 7

PATENT INFRINGEMENT

TEXT A

7.1 The LICENSOR shall indemnify and hold harmless the LICENSEE in the event that any claim is made or any suit or other action is brought against the LICENSEE alleging infringement of one or more of Third Parties' Patents covering the Process and the equipment specified by LICENSOR published until the Effective Date by reason of the LICENSEE's practice of the Process and the Know-how in the Plant or of the sale in the agreed countries of the product produced in the Plant, provided the LICENSEE so notifies the LICENSOR promptly.

7.1.1 The LICENSOR shall also indemnify and hold harmless the LICENSEE from any infringement of a patent on an item of equipment or apparatus of design specified by the LICENSOR as required for the practice of the Process.

TEXT B

7.1 LICENSOR represents and warrants that it has the right to grant to LICENSEE the rights granted under Article 3 of this AGREEMENT, but makes no representation or warranty as to the existence or validity of any Applicable Patent in respect thereto.

7.2 In the event of receipt of a warning letter by and/or institution of any suit against LICENSEE during the term of this AGREEMENT alleging infringement of any (country) patent of a third party (which is not a Government of country undertaking) in the (country) by reason of the practice of the PROCESS in the PLANT, LICENSOR agrees, on request of LICENSEE in writing, made immediately after receipt or institution thereof:

Commentary

The whole of Article 7 in the alternative Text B needs to be read and compared with the whole of Article 7 as drafted in Text A.

Generally speaking, Text A expresses more clearly the point of view of the LICENSEE whereas Text B is written with the LICENSOR's interests in mind.

It is clear in both texts where an obligation of either party is created and this clarity needs to be maintained in any text that the two parties may negotiate.

Patent Infringement

7. The LICENSEE has to accept that a patent dispute might lead to a compulsory closure of his Plant. Therefore, the LICENSEE is well advised to conduct a patent search himself in his own country with the co-operation of the LICENSOR who should advise him of all possible headings under which the patent could appear.

The purpose of this Article is to indemnify the LICENSEE against infringement of patents for use of the Process and sale of the Product in the country where the Plant is located and LICENSEE's principal export markets, for the duration of the Agreement. The LICENSEE should seek a broad indemnification (Text A) and only accept limitations when specific circumstances justify them. Various types of limitation are discussed in the WIPO Guide, paras. 190-205 and one possible alternative which favours the LICENSOR is given here (Text B).

Some LICENSORS claim a limitation on liabilities is justified because they are unable to make a careful search of all third party patents that might be infringed by the LICENSEE using the LICENSOR's process in the LICENSEE's country. Furthermore, that the law of LICENSEE's country may give different interpretations to those in the LICENSOR's country and hence that the LICENSOR's liability under patent infringement cannot be unlimited but must be shared or eliminated.

If the liability of the LICENSOR is unlimited, as in Text A, then the cost of the License may be increased to cover the risk of paying patent infringement costs. These possible additional costs of the License should be considered before the LICENSEE takes his decision on this point.

- 7.1.2 Indemnify shall mean that the LICENSOR shall reimburse in full to the LICENSEE any royalties, licence fee or damages paid to a third party as a result of a ruling of a competent court of law that LICENSEE's practice of the Process and/or Know-how infringes the patent rights of the third party.
- 7.2 The LICENSEE shall give the LICENSOR prompt notice, in writing, of any claim or suit (referred to in Article 7.1) of which it has knowledge. The LICENSOR shall have sole charge and direction of the defence and disposal of such suit of action and the LICENSEE shall render all reasonable assistance but shall not be obligated to sustain any expenses. The LICENSEE shall have the right to be represented by legal counsel experienced in technology contracts of its own choice at its own expense.
- 7.3 The LICENSOR shall have the right to acquire immunity from suit and to make or cause to be made alterations at its own cost to the Plant(s) to eliminate the alleged infringement provided such alteration does not prevent the Plant(s) from meeting its Performance Guarantees mentioned in Article 3.5 with in a time schedule to be agreed with LICENSEE.
- 7.2.1 to discuss with LICENSEE such alleged infringement and the steps to be taken to defend or avoid such suit, including the possibility to make, at the expense of LICENSOR, suitable changes or modifications in the PROCESS and/or in the equipment of the PLANT, as the case may be,
- 7.2.2 to undertake and diligently conduct, at LICENSOR's expense, defence of such suit, and
- 7.2.3 to hold LICENSEE harmless against any judgement or award of damages which may result therefrom, provided, however, that LICENSOR's total liability under 7.2.2 and 7.2.3 combined shall not exceed ( per cent) of the lump-sum payment made by LICENSEE to LICENSOR under Article 8 of this AGREEMENT up to the date when such judgement becomes final, and that LICENSOR shall have the right to expend as much of the total amount as it deems necessary for the purpose of defense, even though the amount left to indemnify LICENSEE against

Commentary

However, if Text B is used, it would be necessary for the LICENSEE to find out the exact status of the Applicable Patents and whether any suits are pending against their validity on the date of the signing of the Agreement. A list of the Applicable Patents in the agreed countries should also be obtained by LICENSEE.

If the LICENSEE accepts limits on the LICENSOR's liability as is provided for in Text B in Article 7.2.3, then this change would also modify Article 3.8 Text A which provides for unlimited liability of the LICENSOR on patent infringement.

7.2 Defense of a patent suit

Clause 7.2 of Text A describes how a patent suit will be defended if it is brought against the LICENSEE.

Clause 7.2.2 of Text B says the LICENSOR must conduct the case diligently but omits to say that he will have sole charge and direction of the defence and disposal of such suit.

Clause 7.2.4 of Text B says that the LICENSEE must repay the LICENSOR the costs of conducting the case in the event that the alleged infringement is denied by the court. Text A is silent on this point.

7.3 Possible alterations to the Plant to eliminate infringement

Clause 7.3 gives the LICENSOR the right to alter the Plant if necessary to eliminate the patent infringement at its cost.

Clause 7.2.1 in Text B only states that the LICENSOR will discuss this possibility with the LICENSEE.

the judgement or award  
is thereby reduced.

7.2.4

It is agreed that the liability of LICENSOR under 7.2.1 to 7.2.3 above shall apply only in so far and to the extent as the operation alleged to infringe such third party patent is based on the Process as operated by LICENSEE in full accordance with the Know-how and the operating manual and/or the Plant as constructed in full accordance with the Know-how, and as far as such third party patent has been in force and published on the Effective Date. In the event and after such alleged infringement has been denied by a final decision of a court having jurisdiction thereof, LICENSEE shall reimburse to LICENSOR all expenditures LICENSOR has incurred in the conduct of the defence of the respective suit according to (b) above.

Clause 7.2.4 in Text B has been commented on above on page 72 under Clause 7.2. It is clearly in the LICENSOR's interest to have the LICENSEE defray costs of the defence if no infringement of patents is proved; but the LICENSEE may not be willing to agree to this.



- 7.3.1 LICENSEE shall render all reasonable assistance to LICENSOR in connection with any suit to be defended by LICENSOR hereunder, and shall not reject any reasonable offer to modify the PROCESS and/or the PLANT in order to avoid infringement. Furthermore LICENSEE shall have the right to be represented in such suit by advisory counsel of its own choice and its expense.
- 7.4 Neither the LICENSOR nor the LICENSEE shall settle or compromise any suit or action without the written consent of the other if such settlement or compromise would oblige the other to make any payment or part with any property, to assume any obligation or grant any licenses or other rights, or to be subjected to any injunction by reason of such settlement or compromise.
- 7.3.2 LICENSOR shall have full control of the defence of any such suit, but shall not be free to settle the same without the consent of LICENSEE if by the settlement LICENSEE would be obliged to make any payments or if the settlement would cause impairment of the ability of LICENSEE to make use of the rights granted under Article 3.

Commentary

Clause 7.3.1 of Text B gives LICENSEE the obligation to assist in any hearings, the right to be represented by advisory counsel in the patent suit (Clause 7.2 in Text A), and the obligation to accept "any reasonable offer" to modify the plant to avoid infringement.

If this text is used "any reasonable offer" should be defined more clearly, particularly in relation to the guarantees.

Clause 7.3.2 of Text B safeguards the interests of the LICENSEE in any settlement of the patent suit that might affect his interests. Such safeguards are included in Text A in 7.4 in more general terms.

7.4 Conditions for settlement of the suit

Clause 7.4 in Text A ensures that LICENSOR and LICENSEE consult each other and agree on the terms of settlement of any patent suit.

Clause 7.4 is replaced in Text B by Clause 7.3.2 with more specific conditions when the interest of the LICENSEE is involved.

## ARTICLE 8

### CONTRACT PRICE AND TERMS OF PAYMENT

8.1 The LICENSEE shall pay to the LICENSOR as consideration for the execution of the Agreement and the performance of the LICENSOR's obligations described in Articles 3, 5 and 6 but excluding the additional services for which an option is provided in Articles 3.4 and 3.7, a lump sum of

(Insert Price and Currency)

together with payments to be made on a cost reimbursable basis at rates specified in Annexure 9 for the assignment of LICENSOR's personnel to the LICENSEE's country. For optional services under Articles 3.4 and 3.7 a separate Agreement will be concluded.

8.1.1 The Lump-Sum Fee shall be for services generally rendered outside the LICENSEE's country and made up as follows:

- (a) for the grant of the License and Know-how:  
(Price and Currency);
- (b) for the supply of the Process Engineering Design Package, and related Technical information and service as described in Articles 3 and 5:  
(Price and Currency);
- (c) for the provision of training and training facilities as described in Article 6:  
(Price and Currency).

8.1.2 The Lump-Sum Fee shall be paid in three instalments as follows:

- (a) (25) per cent as an advance payment to be paid 30 days after signature of the Agreement;
- (b) (50) per cent on receipt of the Process Engineering Design Package;
- (c) (25) per cent on satisfactory demonstration by the Plant of the Performance Guarantees as confirmed by the Acceptance Certificate issued.  
or when the Performance Guarantees shall be deemed to have been met in accordance with Article 3.5.12.

The payments under (b) and (c) shall be paid by the LICENSEE within 30 days of the LICENSEE being advised by the LICENSOR that they are due.

Commentary

8.1 Method of payment

The UNIDO Model Form uses the lump-sum method of payment for the LICENSOR's services rendered outside the LICENSEE's country including the granting of the License. The costs of assigning the LICENSOR's personnel to the LICENSEE's country are to be paid on a cost reimbursable basis. This is perhaps the method most widely used in the petrochemical industry when production in a new plant is envisaged and the technology is well established.

Running royalties are also used in the petrochemical industry, in particular for (a) licensing a completely new process and (b) the provision of know-how on a product which is continuously improved such as polymers. One justification for making such continuing payments is the likelihood of the LICENSOR providing the LICENSEE with information on improvements in the Process and/or Product throughout the duration of the Agreement.

For some Agreements, both a running royalty and a lump-sum payment are agreed; in this case, it could be so arranged that the lump-sum payments are deemed to cover:

- (i) the provision of the Process Engineering Design Package and other technical information, data and drawings;
  - (ii) any of the additional technical services of the LICENSOR provided for in Article 3.4; and
  - (iii) the provision of training (Article 6).
- and the cost of each element should be identified.

The royalty payments are then deemed to cover only the grant of rights to patents and know-how and the continuing provision of information on improvements in the Process and/or Product.

For a very extensive discussion of these points, see the WIPO Guide paras. 390-496, and the following UNIDO Document:

"Guidelines for Evaluation of Transfer of Technology Agreements"  
(Development and Transfer of Technology Series No. 12; ID/233)

8.1.1 The words "rendered outside the LICENSEE's country" are for taxation purposes. This could be altered for specific contracts.

- 8.1.3 For the assignment of the LICENSOR's personnel to work away from home office, payments will be made within 10 days in accordance with Annexure 9 against LICENSOR's monthly invoices, certified at the site. Payments due in local currency shall be made direct to LICENSOR's personnel and in advance.
- 8.1.4 LICENSEE shall pay to LICENSOR ..... per cent interest on any delay in his payment obligations.
- 8.1.5 Payments other than those due in local currency shall be made in ..... (currency) to the account of the LICENSOR at ..... (Bank named by LICENSOR).

The taxation of payments, which is important when determining the total Licence Fee, is discussed in the commentary on Article 10.3 and in the WIPO Guide, paras. 511-527.

8.1.2 In some cases payments scheduled according to a longer list of events could be appropriate (see UNIDO Document ID/233, pages 39-49).

8.1.3 The exact mode of payment in local currency could be decided on a case to case basis. It is obviously advantageous for both parties, if payments covering local expenses are paid in local currency.

8.1.4 Whilst this clause might have been omitted in the past when interest rates were low, it is obviously important when interest rates are equivalent to 1.0, 1.5 or even 2.0 per cent per month (not per annum).

8.1.5 The exchange rate of a currency at the time payments are made may differ greatly from the rate when the Agreement was signed. It is therefore important to state (a) in which currency the obligation to pay is created (line 6 of Article 8.1 on page 77) and (b) in which currency payments are to be made. Usually the currency in which the obligation is made will be used for the payments. If it is not the exchange rate to be used at the time of each payment must be clearly specified in the Agreement.

The LICENSEE may purchase foreign exchange for later delivery at a cost if he wishes to hedge against an appreciation in the value of the currency in which the obligation to pay has been made.

ARTICLE 9

DURATION OF THE AGREEMENT

Effective Date

9.1 The Effective Date of the Agreement shall be the date upon which the last of the following requirements has been fulfilled:

- (a) Approval of the Contract by the Government of (country) where the plant is to be located, such approval, if required, to be obtained by the LICENSEE.
- (b) Approval of the Government of (country) where the LICENSOR resides and has his principal place of business, such approval, if required, to be obtained by the LICENSOR.
- (c) The remittance of the advance payment by the LICENSEE as provided under Article 8.1.2(a) secured by the Bank Guarantee provided by the LICENSOR in accordance with Article 10.1.

9.1.1 The Effective Date shall be confirmed in writing by both parties.

Duration of the Agreement

9.2 The duration of the Agreement shall be for a period of ( ) years from the Effective Date.

Rights on Expiry of the Agreement

	A	B
9.3	The rights and licences granted by the LICENSOR to the LICENSEE under Articles 3.1 and 3.7 of this Agreement shall survive expiration of the term of this Agreement.	The rights and licences granted by the LICENSOR to the LICENSEE under Articles 3.1 and 3.7 of this Agreement shall survive expiration of the term of this Agreement, if LICENSEE has complied with all his obligations.

Obligations on Expiry of the Agreement

9.4 The LICENSOR and the LICENSEE shall have no further obligations on Expiring of the Agreement, except as specified in Article 4.4.

### 9.1 Effective Date

The date when the Agreement enters into force needs to be defined. The Agreement enters into force when the LICENSEE's Government approves the Agreement and the LICENSEE makes the advance payment. The prior approval of the LICENSOR's Government can also be included (clause 9.1(b)) if such approval is relevant; if it is not relevant, Clause 9.1(b) can be deleted.

The approval of the Agreement by the LICENSEE's Government is an important condition because a growing number of developing countries have introduced national laws governing the transfer of technology with which the Agreement must comply. In some developing countries, the right to obtain foreign exchange to make payments for the License is made conditional on such approval (see WIPO Guide, paras. 507-508).

9.1(c) For comments on bank guarantees, see the commentary on Article 10.

### 9.2 Duration of the Agreement

In the UNIDO Model Form, the duration of the Agreement has been left to negotiation. A period of 10 years is suggested. Since payment is in the form of a lump-sum, it is generally in the interest of the LICENSEE to keep this period as short as possible.

In fixing the Duration of the Agreement, the parties will have to take into account: (a) the legal term of the unexpired property rights of the LICENSOR; protection conferred by patents usually lasts a maximum of 20 years; (b) any limitation on the terms which may be imposed by the national law on the transfer of technology (see WIPO Guide, para. 584 for examples) and (c) the time period set for the performance of other obligations under the Agreement.

The Agreement establishes periods for the mutual obligations for maintaining confidentiality (Articles 3.4 and 4.4) and to exchange information on improvements (Articles 3.2 and 4.2). In the UNIDO Model Form they have been set at 10 years; but the length of the obligation as regards confidentiality must take into account the type of information provided, the pace of development in the field of technology covered and the number of persons exposed to the information.

### 9.3 Rights on Expiry of the Agreement

The difference between Text A and Text B is that in B the continuation of the rights under 3.1 and 3.7 are subject to the LICENSEE carrying out his obligations. The two texts could be reconciled if the obligations are spelled out e.g. making payments, etc.

### 9.4 Obligations on Expiring of the Agreement

The need for further obligations, if any, clearly depends on the Duration of the Agreement and the period of confidentiality under Article 4.4.



Termination

9.5 If the Agreement has not come into effect before \_\_\_\_\_, the Agreement shall be terminated unless the LICENSOR and the LICENSEE agree to amend the Agreement to take account of the delay. The Agreement may also be terminated in the following circumstances:

9.5.1 The LICENSOR may terminate this Agreement and the right and licence granted to LICENSEE by written notice to the LICENSEE if the LICENSEE has failed to complete his obligations in the time specified in the Agreement provided that such default has continued unremedied for more than ... months and one month has elapsed since such notice was served.

9.5.2 The LICENSEE may terminate this Agreement by written notice to the LICENSOR, if the LICENSOR has failed to complete its obligations in the time specified in the Agreement and provided that such default has continued unremedied for more than ..... months and that one month has elapsed since written notice was served by the LICENSEE.

Commentary

9.5 Termination

As a general rule, neither party anticipates a need to terminate the Agreement, in particular when payment is in the form of a lump-sum as in the UNIDO Model Form. It is more appropriate for a License requiring continuing royalty payments.

9.5.1 This safeguards the LICENSOR in the unlikely event of the LICENSEE not fulfilling his obligations under the Contract.

Some LICENSORS may request an additional clause stating that if the agreement is terminated due to the fault of the LICENSEE, the LICENSEE's obligation as regards the secrecy agreement should continue for the unexpired period, or for another limited period, as proposed in the WIPO Guide, para. 598 and footnote (279).

Some LICENSORS may request return of technical documents or termination of their right to use, in case the LICENSEE has not substantially performed his obligations under the Agreement (see WIPO Guide, para 279(b)).

9.5.2 This safeguards the LICENSEE in the unlikely event the LICENSOR defaults in his obligations.

Some Licensors ask for the right to terminate or re-negotiate the agreement if the LICENSEE has terminated business or if there is a substantial change of ownership of the LICENSEE and in particular if a competitor buys ownership of the Plant. Whilst it may be appropriate to anticipate this type of event, not all LICENSEES would accept such a clause because it could frustrate the purpose of the Agreement after the lump-sum License fee has already been paid.

ARTICLE 10  
GENERAL CONDITIONS

Bank Guarantees

10.1 The LICENSOR shall deliver to the LICENSEE on receipt of the advance payment a Bank Guarantee in favour of the LICENSEE in the form provided in Annexure 12, guaranteed by (Name of Bank) and confirmed in (LICENSEE's country), to secure the advance payments made under this Agreement. The amount of the Bank Guarantees shall be completely released upon delivery of the Process Engineering Design Package.

Insurance

10.2 The LICENSOR and LICENSEE shall effect or maintain insurance in respect of their own property and personnel, respectively; such insurance cover shall in particular cover any claim that may be made by or on behalf of their employees alleging injury or death arising as a result of or in connection with the performance of this Agreement.

Commentary

Bank Guarantees

10.1 A Bank Guarantee is provided to secure the advance payment made by the LICENSOR. Whether a bank guarantee is required will depend upon the circumstances, and safeguards the LICENSEE in the unlikely event of the LICENSOR not fulfilling his obligations.

In some cases the LICENSOR also delivers on receipt of payments for the Process Engineering Design Package (Article 8.1.2(b)) a Bank Guarantee for an amount equal to his liability under the Agreement as limited in Article 3.8 less the amount due to the LICENSOR under Article 8.1.2(c); this Bank Guarantee remains in force until the Performance Guarantees of the Plant are successfully demonstrated.

10.2.1 The LICENSOR or LICENSEE, as the case may be, shall be responsible for maintaining the following Insurance policies:

- Insurance liability for the staff of the LICENSOR deputed to site of the Plant, or the staff of the LICENSEE deputed to the LICENSOR's offices.
- Insurance liability for automobiles or other transport of the LICENSOR or LICENSEE at site of the Plant.

10.2.2 The LICENSOR shall ensure that its services provided under this Agreement are covered by its corporate "Professional Indemnity" insurance policy as regards its liability for errors and omissions, negligence, mistakes in design, etc., arising from the LICENSOR's work.

10.2.3 The LICENSOR shall, when required by the LICENSEE, submit to the LICENSEE adequate proof that the insurance(s) for which it is responsible are in force.

#### Taxes and Levies

10.3 Except as otherwise specified in this Agreement, each and every price cited in or contemplated by this Agreement as described in Article 8, includes and covers all patent royalties, and all taxes, rates, charges and assessments of any kind whatsoever (whether Federal, State or Municipal, and whether or not in the nature of excise taxes/duties, customs tariffs, sales taxes, land taxes, license fees or otherwise) outside the LICENSEE's country pertinent to the LICENSOR's services provided with respect to the Plant pursuant to this Agreement, and/or to the performance of the work, and all other costs and charges whatsoever relevant to equipment, material, services and/or to such performance of the work by the LICENSOR.

Commentary

Insurance

10.2 It is normal practice for the insurance under 10.2.1 to be taken out by the LICENSOR (See WIPO Guide, paras. 549-556), for his personnel and automobiles and by the LICENSEE for his personnel, particularly where local regulations require such insurance.

10.2.2 Article 10.2.2 has been included because such insurance cover was recommended by the First Consultation. If the LICENSOR is willing, the LICENSEE should discuss with him whether he has such a corporate "Professional Indemnity" policy and precisely what it covers. In some cases, the LICENSOR may be self-insured for the liabilities likely to arise from this Contract. Information is generally not available on whether such policies cover simple negligence or a wider range of errors by the LICENSOR and the LICENSOR may not be willing to disclose what his policy covers simply because it covers the entire business of the corporation rather than the services provided under the Agreement. Such policies are often only for loss of property or loss of life. In this case the LICENSOR may wish to delete Article 10.2.3 which obliges him to make such a disclosure.

No provision has been made in this Article for insuring against defective specification of materials of construction by the LICENSOR, except in so far as such defects may be covered by the Professional Indemnity Insurance.

Taxes and Levies

10.3 The implications of this Article should be carefully considered by the LICENSEE.

- 10.3.1 Subject to national laws in the LICENSEE's country, the amounts to be paid to the LICENSOR under the Agreement shall be net and free of any income taxes or other taxes, duties, or imposts or levies in (LICENSEE's country).
- 10.3.2 Notwithstanding the provisions of Article 10.4.1, in the event of a double taxation agreement between (LICENSOR's country) and (LICENSEE's country), any taxes or levies of any kind imposed by the National or any Local Government of (country of LICENSEE) pursuant to the law with respect to payment of fees, charges or expenses under this Article or the remittance thereof shall be paid by LICENSEE by deduction from the amount or amounts to be paid to LICENSOR. LICENSEE shall provide LICENSOR with original receipts of the Government authorities in evidence of payment of such taxes or levies. In the event that the tax benefits obtained by the LICENSOR as a result of the tax deduction by LICENSEE under 10.3 above, are less than the amount anticipated at the time of signing the Agreement the LICENSEE shall reimburse the difference to the LICENSOR.

#### Arbitration

10.4 All disputes between the parties arising out of the provisions of this Agreement, if not resolved amicably by negotiation, shall be settled by arbitration in accordance with the Law of Arbitration of (country)/the Arbitration Rules of the United Nations Commission on International Trade Law/the Rules of Conciliation and Arbitration of the International Chamber of Commerce.

- 10.4.1 If either party hereto defaults under any provision of this Agreement and such default continues unremedied for .... days after written notice has been given by one party to the defaulting party and settlement has not been arrived at then the former party shall have the right to have the matter resolved and settled by arbitration.

Commentary

The purpose of Article 10.3.1 is to make it clear that payments to the LICENSOR are made net of taxes whenever taxes are due on such payments. The purpose is to place on the LICENSEE the burden of collecting taxes due in the LICENSEE's country (see WIPO Guide, paras. 511-527). It may be appropriate to add to Article 10.3 the following clarification:

" In the event that the LICENSEE deducts such tax from the amount of the income to be remitted to the LICENSOR, the LICENSEE shall send to the LICENSOR, in due course, a tax certificate showing the payment of such tax."

Article 10.3.1 states the condition "subject to national laws in the LICENSEE's country" which both parties should examine and discuss. In some developing countries, the national law may require that tax applicable to the License Fees be withheld by the LICENSEE.

Article 10.3.2 covers the situation where a double taxation agreement exists between the two countries. If such an Agreement exists the LICENSEE may ask which tax benefits the LICENSOR may obtain in his own country and whether these should reduce the cost of the License to the LICENSEE.

Where no such double taxation exists and its introduction is not anticipated, this clause can be omitted. The last sentence of 10.3.2 has been drafted with the intention of ensuring the LICENSOR does not suffer if the anticipated tax benefits are not realized. This presumes that he has reduced the License Fee. If he has not this sentence should be omitted. In any event, it seems a very difficult provision to implement.

Arbitration

10.4 Despite the mutual confidence which the two parties have in each other at the time of signature of the Agreement, difference of opinion can arise in interpreting its provisions. Article 10.4 provides for a procedure to refer such a dispute to arbitration.

In this connecton, the party claiming default must do so in writing immediately in order to establish his rights.

The text provides three alternatives for Arbitration:

under the laws of a specified country  
under the rules of UNCITRAL  
under the rules of the ICC

Each alternative is discussed in the WIPO Guide, paras. 635-646.



- 10.4.2 The award of the Arbitrator or Arbitrators, as the case may be, shall be final and binding on the parties hereto. Judgement upon the award may be entered by the court of (country)/by any court of competent jurisdiction.
- 10.4.3 The LICENSOR and LICENSEE shall continue to undertake their obligations under the Agreement during any arbitration proceeding unless otherwise agreed by the other party in writing.
- 10.4.4 The LICENSOR and LICENSEE agree that in the event of arbitration proceedings, the Arbitrator(s) shall have unrestricted access to the Plant for the purpose of the said Arbitration.
- 10.4.5 Arbitration shall be in (town) and all proceedings will be in ..... language. The Governing Law shall be in accordance with Article 11.3.

Force Majeure

10.5 Force Majeure shall be deemed to be any cause beyond the reasonable control of the LICENSOR or the LICENSEE which prevents, impedes or delays the due performance of the Agreement. Force Majeure may include but shall not be limited to any one or other of the following:

- any war or hostilities;
- any riot or civil commotion;
- any earthquake, flood, tempest, lightning, unusual weather or other natural physical disaster;
- any accident, fire or explosion.

Commentary

10.4 Arbitration (contd.)

As regards arbitration, it is important to clarify

- (a) how the Arbitrators are appointed;
- (b) the rules governing the arbitration;
- (c) the venue and language;
- (d) the Governing Law of the Agreement.

The Governing Law of the Agreement is described in Article 11.3. The venue and language of the Arbitration are given in Article 10.4.5. It should be noted that the Law of a developing country may state that a Licensing Agreement will not be approved by the Government if it includes a clause making arbitration in another country or under another national law applicable (WIPO Guide, para. 642).

The rules on ad hoc arbitration of UNCITRAL recommended by the United Nations General Assembly in its resolution 31/98 of 15 December 1976 are contained in United Nations document A/31/17 (1976) pages 35 to 55. The rules of arbitration can be obtained from:

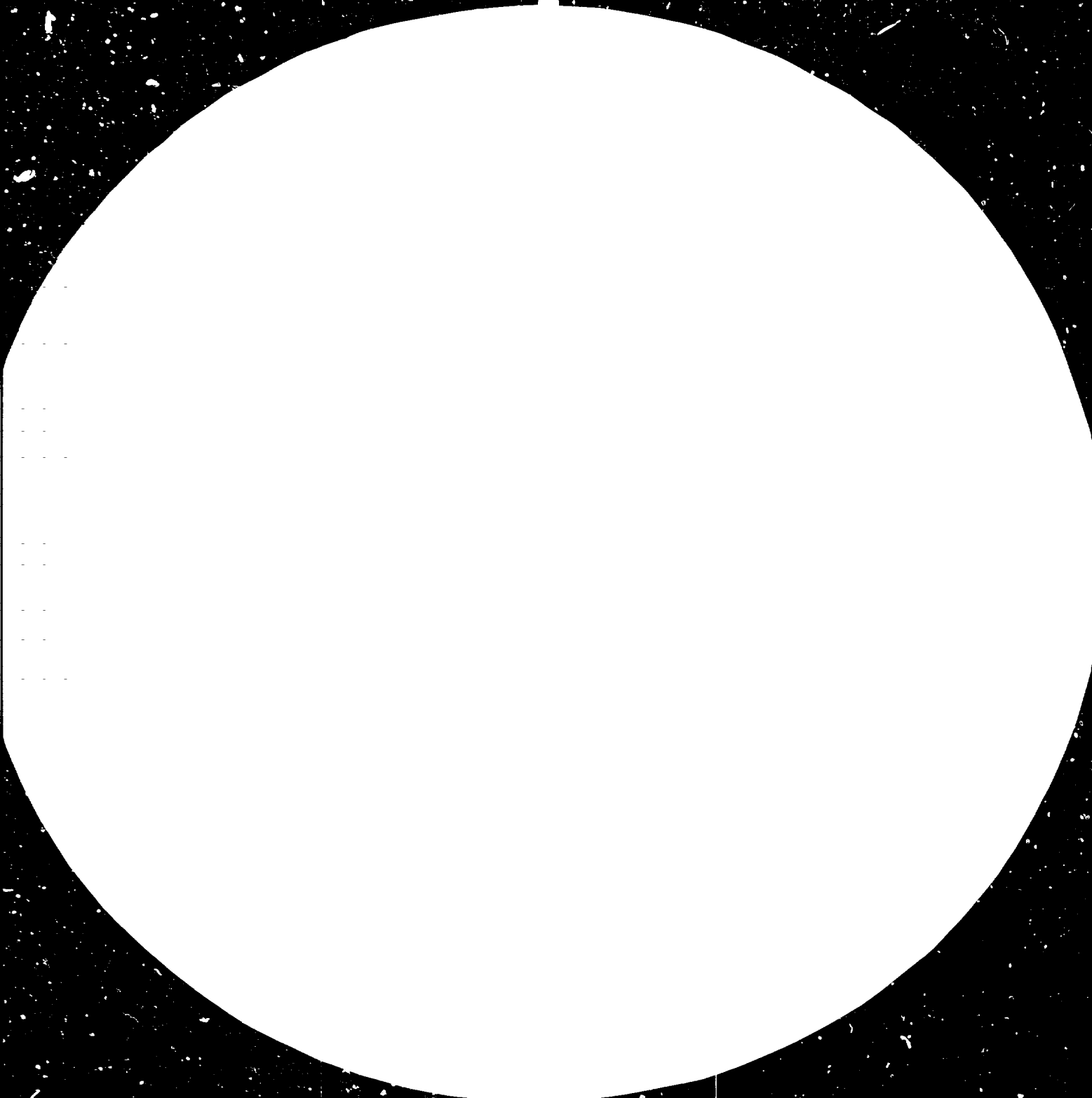
The United Nations Commission on  
International Trade Law  
Vienna International Centre  
P.O. Box 500  
A-1400 Vienna  
Austria  
Telex: UNCITRAL 135612

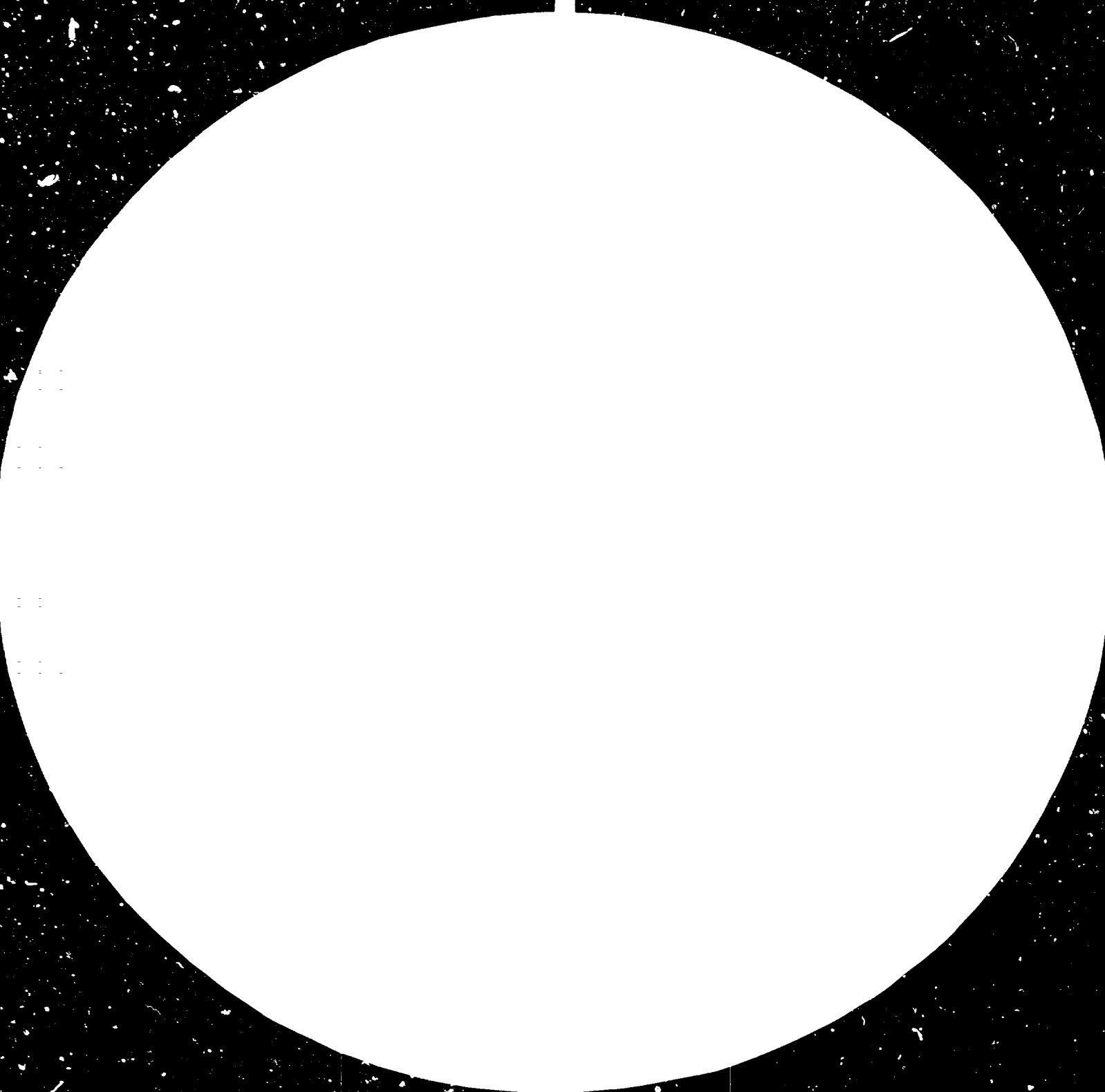
10.4.4 In most cases the LICENSORS may require a secrecy agreement from the Arbitrator.

Force Majeure

10.5 In some cases strikes, lock-outs and concerted acts of workmen and changes in the law and regulations of the Government in the LICENSEE's and LICENSOR's countries are included as causes of force majeure.

- 10.5.1 The affected party shall give a written Notice of Force Majeure to the other party within ..... days of the happening of such event, specifying the details constituting Force Majeure with necessary evidence that a contractual obligation is thereby prevented or delayed; the affected party shall then be excused from the performance or punctual performance of such obligation as from the date of such notice for so long as may be justified by the event.
- 10.5.2 If performance of the Agreement is affected by conditions of Force Majeure for a continuous period of six (6) months, the parties shall amend the terms of the Agreement accordingly.
- 10.5.3 If the LICENSEE and the LICENSOR are unable to reach agreement on amendments to the terms of the Agreement needed by virtue of the prevailing Force Majeure within ( ) days, the dispute shall become subject to Arbitration.







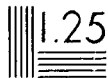
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2.2



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10

Commentary

10.5.1 The following Article may be added in the definition of force majeure, particularly if strikes are included in the definition:

"The affected party shall be diligent in endeavouring to prevent or remove the cause of Force Majeure. Upon receipt of the Notice of Force Majeure, the other party shall confer promptly with the affected party and agree upon a course of action to remove or alleviate such cause(s), or shall seek alternative methods of achieving the performance objectives under the Agreement".

10.5.2 This Article states that the two parties will modify the Agreement if the conditions of force majeure continue for a long time (6 months is suggested, but any other period could be chosen).

ARTICLE 11

MISCELLANEOUS PROVISIONS

Assignment

- 11.1 This Contract shall inure to the benefit of and be binding upon the parties hereto and their and each of their executors, administrators, curators, successors and assigns, subject to the provision that this Contract may not be assigned by the one party without the written consent of the other party.

General Provisions

- 11.2 The express covenants and agreements herein contained and any amendments made in writing by the LICENSEE and the LICENSOR are and shall be the only covenants and agreements upon which any rights against the LICENSEE or the LICENSOR are to be founded:
- 11.2.1 This Agreement supersedes all communications, negotiations, and agreements, either written or oral, relating to the work and made prior to the date of this Contract.
- 11.2.2 The provision of the Articles of this Agreement and the contents of the Annexures shall be complementary to each other, but in the event of any conflict, the provisions of the Articles shall prevail.
- 11.2.3 Article headings appearing herein are included for convenience only and shall not be deemed to be part of this Agreement.
- 11.2.4 The governing language of the Agreement shall be (.....) and the definitions in such language shall be final in the use and interpretation of the terms of the Agreement.

Governing Law

- 11.3 The laws applicable to the Agreement shall be the laws of .....



### Commentary

#### Assignment

11.1 The UNIDO Model Form provides for a general requirement that the other party should approve in writing in advance any assignment of the Agreement to another party. The LICENSEE is unlikely to withhold such approval if the LICENSOR wishes to change the legal entity of the family of enterprises of which it is a member. But the LICENSOR may object with good reason if ownership of the LICENSEE's is transferred to a new owner that is a competitor.

An additional sub-article may be added to Article 10.5 to make such a transfer of ownership to a competitor a cause for termination of the Agreement. Another approach would be to add in Article 11.1 a provision that the Agreement cannot be assigned by either party without the consent of the other in the event that there is a merger involving a company which owns technology within the field of agreement.

#### General Conditions

11.2.1 is an important clause because some preliminary information may have been exchanged prior to concluding the Licensing Agreement itself.

#### Governing Law

11.3 In some countries, the Governing Law must be the laws of the country where the plant is located; where the choice is open, the other possibilities are the laws of the LICENSOR's country, the laws of a neutral country, etc.

The Licensing Agreement has multiple facets with contacts in more than one country. It is therefore essential to indicate which is to be the Governing or Applicable Law. The law of some developing countries insists that their own national law govern the transaction. (See WIPO Guide, paras. 626-635).

Language

11.4 All correspondence, information, literature, data, manuals, etc. required under the Agreement shall be supplied in the ( ) language.

11.4.1 All personnel sent by the LICENSOR to the Site, and all personnel sent by the LICENSEE for training shall be conversant in the ( ) language.

Standards and Codes

11.5 The standards and codes of (country) shall be used in the design and specifications of the Plant, unless otherwise agreed at the First Detailed Engineering Meeting. The LICENSEE shall inform the LICENSOR of any statutory standards and codes applicable to the plant at this meeting.

Local Laws and Regulations

11.6 The LICENSOR, his staff, and representative shall observe all codes, laws and regulations in force in the country of the LICENSEE and in the region where the Plant is located, made known to LICENSOR by LICENSEE.

11.6.1 In the event that any code, law or regulations are enacted after the Effective Date, and transmitted by LICENSEE, are proven (to the satisfaction of the LICENSOR) to have adverse effect on the LICENSOR's obligations, scope of work, prices and/or time schedule under this Contract, the LICENSOR shall either:

- (a) assist LICENSEE to obtain appropriate exemption(s) from the relevant authorities on the LICENSEE's behalf, or
- (b) negotiate with the LICENSEE for commensurate change(s) in the scope of the work to be performed under the Contract, together with such changes in price as properly reflect the actual increased costs that are anticipated. The increased amount shall be subject to full audit by the LICENSEE.

Commentary

Standards and Codes

11.5 Standards and Codes must be decided either before or at the First Detailed Engineering Meeting at the latest. The Standards and Codes required for the Process Engineering Design Package should be decided at the time of signature of the Agreement.

Notices

11.7 Any notice or other communication to be made by the LICENSOR to the LICENSEE shall be effective when mailed by registered post with acknowledgement due. Any notice or other communication to be made by the LICENSEE to the LICENSOR shall be effective when mailed by registered post with acknowledgement due.

11.7.1 When any such notice is sent by registered mail, it shall be deemed to have been duly served following the expiration of (14) days following the date of posting; in proving that notice was served it shall be sufficient to show that the letter containing the notice was properly addressed and conveyed to the postal authorities for transmission by registered airmail, and a telex or telegram was sent advising despatch of the notice.

11.7.2 Either party may, by notice to the other party in writing, change its postal address, cable address or telex numbers for receiving and/or forwarding such notices.

Approvals

11.8 "Approval" shall be deemed to mean approval in writing. Decisions requiring approval shall also be deemed to encompass modifications or rejections, all of which shall be in writing.

11.8.1 Any and all approval(s) which amend, modify or vary the Contract and/or involve an increase in payment(s) shall be forwarded in like manner as the procedure specified for the notices under Article 11.7.

National Security

11.9 If any document or information given or disclosed to the LICENSOR is deemed by the LICENSEE to affect national security, the LICENSOR will take all reasonable measures directed by the LICENSEE to ensure the maintenance of the security.

Commentary

Notices

11.7 The drafting of this Article must take account of the most reliable form of communication between the parties. It may be telex or facsimile transmission of documents are more reliable than registered mail.

11.7.1 The period of days allowed for serving the notice can be eliminated if telex/facsimile transmission is used and acknowledged.

Approvals

11.8 This describes normal practice in the industry.

National Security

11.9 This clause has been included at the suggestion of some developing countries who have found this an important consideration. Parties who do not find it so may delete the clause.

LIST OF PATENTS GRANTED AND PENDING APPLICABLE TO THE  
PROCESS ON DATE OF SIGNATURE OF THE AGREEMENT

Reference Article 1.10 and 3.1

<u>Patent No.</u> (Country)	<u>Application or Registration date</u>	<u>Expiry date</u>	<u>Description</u>
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DESCRIPTION OF LICENSOR'S PROCESS (An illustrative outline with reference to Polypropylene and for VCM)

Reference Article 2.6

A. Process for manufacture of Polypropylene:

The LICENSOR'S PROCESS referred to in Article 1.5 and 2.6 is the Process whereby propylene is polymerised in the presence of a catalyst formed by a mixture of a solution of an aluminium organometallic compound and titanium trichloride at .....°C (temp. range) and..... bar to produce pelletized propylene homopolymers. (pressure range)

The process includes:

- preparation of the catalyst mixture
- polymerisation in liquid..... (solvent)
- separation of unreacted propylene
- decomposition of the catalyst by.....alcohol
- centrifugation from solvent, stripping, aqueous centrifugation.
- drying
- extrusion and pelletisation of the polymer, natural as well as coloured
- solvent recovery

The preparation of the components of the catalysts are not included.

B. Process for the manufacture of EDC and VCM:

B.1 The LICENSOR'S PROCESS referred to in Art. 1.10 is the process for manufacture of EDC and VCM whereby ethylene is converted to EDC partly by direct chlorination and partly by oxychlorination and EDC is converted by pyrolysis to VCM.

The process shall include:-

- (i) The manufacture of EDC by liquid phase addition chlorination of ethylene by low temperature or high temperature.
- (ii) The manufacture of EDC by air based oxychlorination of ethylene.

- (iii) The purification of recycle EDC and the crude EDC produced by the reactions under (i) and (ii) above.
- (iv) The thermal cracking of pure EDC to produce VCM and HCL.
- (v) The purification of the VCM.
- (vi) Primary treatment of the liquid effluents.
- (vii) Disposal system for vent gases.
- (viii) Waste incineration and effluent treatment.

.....

Commentary

In real contracts, this description covers around ten or twenty pages. The text proposed here is only a summary. In an actual Agreement, the Licensor should give in this Annexure a description as detailed as possible without disclosing confidential information of the whole process together with all the auxiliary steps/catalyst preparation, solvent recovery, by-product incineration etc./ with flow-sheet/s.



DESCRIPTION OF LICENSED PLANT (Illustrative with reference to Polypropylene)

Reference Art. 2.1

The LICENSED PLANT referred to in Article 1.20 means a commercial plant designed with a capacity to produce ..... metric tons per day of propylene homopolymers corresponding to ..... metric tons per year based ..... operating hours. The Plant will produce .....% of the polymer in the form of powder and /or pellets.

The Plant will consist of the following units:

- (i) Polymer powder production unit: The unit shall have separate sections for
  - a. preparation of catalyst mixture
  - b. polymerization of propylene and separation of unreacted propylene
  - c. centrifugation and finishing
  - d. drying of polymer powder.
- (ii) Polymer extrusion and pelletization.
- (iii) Solvent recovery.
- (iv) Waste incineration.
- (v) Effluent treatment.

Within the physical boundaries on the site layout (Annexure 5) marked as Battery Limits,

Every and all process steps between the inlet points of the raw materials, services and chemicals and the outlet point(s) of Product, defined in Annexure 5 necessary to implement the Process and fulfil the guarantees.

(Exclusion. (if any) should be clearly defined.)

SPECIFICATION OF PRODUCTS AND BY-PRODUCTS

(Illustrative with reference to Polypropylene and VCM/EDC)

Reference Art. 2.1

The specifications of the PRODUCT, the characteristics of by-products and the expected recoveries are given below:

Polypropylene

1. The specifications of polypropylene common to all the grades will be:

- 1.1. polypropylene homopolymer .....% by wt.min.
- 1.2. density .....tg/cm<sup>3</sup>
- 1.3. ash content in the powder .....ppm wt.max.
- 1.4. water content in the powder .....ppm wt.max.
- 1.5. chlorine content in the powder .....ppm wt.max.
- 1.6. isotacticity index of the powder .....%
- 1.7. specific heat .....
- 1.8. thermal conductivity .....
- 1.9. linear expansion co-efficient .....
- 1.10 dielectric constant .....
- 1.11 dissipation factor .....
- 1.12 dielectric rigidity .....
- 1.13 volume resistivity .....

2. The specifications particular to each type and grade will be as follows:-

2.1. TYPE

SPECIFICATION

(a)

(b)

(c)

etc.

3. By-products and recoveries

3.1 Atatic Polypropylene

- water .....% by wt.

- solvent .....% wt.max.

### 3.2. Untreated Propylene

- state .....gaseous
- propylene .....% wt.
- solvent .....% wt.
- impurities (ethane + propane + hydrogen + water + nitrogen) .....% wt.
- temperature .....°C
- pressure .....bar

### EDC & VCM

#### Vinyl Chloride

The specifications of VCM shall be:

- vinyl chloride .....% wt. min.
- Acidity (as HCL) .....ppm wt. max.
- Acetylene .....ppm wt. max.
- Acetaldehyde .....ppm wt. max.
- water .....ppm wt. max.
- sulphur .....ppm wt. max.
- Iron .....ppm wt. max.
- Heavy ends (contains chloroprene, ethyl + chloride, vinylidene chloride, cis & trans dichloroethylene, 1.1 and 1.2 dichloroethane trichloroethylene, per-chloroethylene, mono & dichloropropane and vinyl bromide). .....ppm wt. max.
- Methyl chloride .....ppm wt. max.
- 1, 3 Butadiene .....ppm wt. max.
- Non-volatiles .....ppm wt. max.
- Color .....colourless
- Appearance .....clear and free from suspended matter.

The specifications of the commercial grade ethylene dichloride will be:

- Ethylene dichloride .....% wt. min.
- Trichloro ethylene .....ppm wt. max.
- 1,1,2 trichloro ethane .....ppm wt. max.
- Chloroform and carbon tetrachloride .....ppm wt. max.
- Hydrochloric acid .....ppm wt. max.
- Moisture .....ppm wt. max.
- .....

The specifications of the product/s given are only illustrative. The actual specifications should cover all the main products, by-products and recovered streams, as well as effluent streams. To make the figures specified meaningful the analytical methods to be used should be agreed and be included in this same Annexure. It is also necessary to select those parameters which must be guaranteed and state the tolerance limits for each parameter.

PRELIMINARY OUTLINE OF THE SITE AND LAYOUT OF THE PLANT

DEFINITION OF THE BATTERY LIMITS

1.1 Plant location

The Plant is to be located at (or near) (name of town) in (country).  
The site for the Plant is indicated on the site map which shows the dimensions of  
the site and is attached as Drawing No \_\_\_\_\_.

1.2 Layout of the Plant

The preliminary layout of the Plant shall be designed by LICENSOR within Battery Limits defined below and taking into account the site condition (1.1 above) as well as the Basic Data.

1.3 Definition of the Battery Limits

Comment: The Battery Limits of the area of plant design should be clearly stated and indicated on the preliminary plot plan with approximate data on elevation of the connection points above and underground. All points of connection (inputs and outputs) shall be clearly defined. For this purpose the best method is to draw a Battery Limits stream flow-sheet, where all streams entering the Plant and leaving it should be defined by all their parameters: quantity, composition, pressure, temperature/maximum, minimum, average. The storage capacities needed or proposed for each entering or leaving stream should be specified together with the agreed location inside or outside Battery Limits.

An example of a suitable text would be as follows:

- Inputs - Natural gas shall be supplied by the Gas Distribution Company at a single point on the boundary of the plant (unit inlet or battery limit).
- Water shall be pumped to the plant site and will be available (provide separate data on cooling water and/or well water etc. as make-up water and utility water) at a single point in the plant. A plant storage at ground level of \_\_\_\_\_ m<sup>3</sup> will be provided, and water will flow to this storage. All treatment and pumping facilities for the water are part of the design.
- Steam and power requirements shall be generated in the plant. External steam and power supplies shall be connected to the respective points as indicated on the plot plant (separately for different parameters).

- Electric power of .....V . Hz ....MW capacity at ..... point (indicated on the plot plan).
- Naphtha input at ..... point coming from storage area (excluded).
- All chemicals, catalysts will be supplied at storage/warehouses at ground level. (Indicate location at the construction site or within the plot).

Outputs - Filling and loading facilities are included in Battery Limits. Outputs are: railway wagons and road trucks.

- Effluents shall be disposed off to \_\_\_\_\_.

Within the above battery limits, the entire Plant, (excluding the utilities) contained in Annexure 1 and 2 shall be designed by the LICENSOR. It is generally understood that if not specifically mentioned the connecting points of inlet and outlet pipes shall be one meter outside the battery limit or 250 mm above ground/floor level, flanged or unflanged with the cut-off valves included in the scope of design.

SCOPE AND CONTENT OF ENGINEERING SERVICES  
AND CO-ORDINATION OF WORK

1. LICENSOR shall execute the Basic Engineering Design Package with the content and the delivery date defined in Annexures 8 and 7. The co-operation of both parties shall be assured by the Process Engineering Design Meetings held according to Article 5.1 and mutual delivery of technical documentation as follows:

1.1 Within ..... days from the Effective Date LICENSEE shall deliver the Basic Design Data for the Plant containing:

(a) Information on site including geographical details, connection of the site by rail and road to nearby major town and ports, shipping and transport possibilities and limitations;

(b) Meteorological information;

(c) Soil conditions including soil bearing data and geological aspects e.g. susceptibility to earthquake etc.,

(d) Information on utilities. This will cover

(i) the source of steam, supply, pressure level, superheat, temperature, condensate system characteristics,

(ii) availability and reliability of power, levels of voltage, etc.,

(iii) system of cooling proposed, air/water, re-circulating/once through (and other cooling water properties),

(iv) fuel oil, gas or other fuel characteristics,

(v) systems for instrument air, process air, inert gas, refrigeration, process water, etc.

(e) Design codes and standards to be adopted and special considerations from the viewpoint of fabrication of equipment in particular country or countries;

(f) Local codes, laws or regulations on toxic or explosive hydrocarbons affecting layout provision of safety systems etc.

(g) Design information, flexibility requirements and design margins for equipment:

- (i) preference for types and design criteria of rotary equipment namely pumps and compressors from the point of view of standardization and spares policy,
- (ii) heat exchanger design considerations e.g. on type of pitch, tube length, etc.,
- (iii) considerations on internals of columns and vessels e.g. type of trays,
- (iv) fired heaters, e.g. from the point of view of energy conservation,
- (v) instrument type and sizes to be used,
- (vi) piping design requirements and the philosophy to be followed,

(h) Safety systems, including pressure relief system and the flare system and other systems to ensure compatibility with the requirements of the LICENSEE;

(i) Coding system for the equipment;

(j) Capacity of the unit for purposes of the design, process design margins, etc.;

(k) Source of the raw materials and auxiliary chemicals, condition of delivery at the battery limits, specifications, level of impurities, etc.;

(l) Philosophy of storage required for the plant. Special requirements for intermediate storage;

(m) Ecological considerations namely, legal prescriptions for solid, liquid and gaseous waste streams from the plant and their possible methods of disposal;

(n) Local codes, laws, prescriptions and rules to be taken into account in the Process Engineering Package.

1.2 Within ..... days from the Effective Date the First Basic Design Meeting shall be held (Article 5.1) to discuss the Basic Data and agree on them as basis for the LICENSOR's design work.

1.3 <sup>1/</sup> Within the time specified in Annexure 7 LICENSOR shall deliver to LICENSEE the first part of the Process Engineering Design Package covering clauses 3.1, 3.2.5, 3.2.6 of Annexure 8.

1.4 <sup>1/</sup> Within ..... days from the Effective Date the Second Design Meeting shall be held to discuss and agree on documents delivered under 1.3 above. This agreement shall form the basis of LICENSOR's consequent design work.

1.5. Within the time specified in Annexure 7 LICENSOR shall deliver the complete Basic Engineering Design Package.

1.6. Within ..... days from the Effective Date the Third Design Meeting shall take place.<sup>2/</sup> LICENSEE and if possible Contractor will make his observation and remarks on the documentation delivered and if appropriate, require the necessary alterations, modifications and/or additions. LICENSOR having satisfactorily completed this work, the Process Engineering Package shall be accepted by LICENSEE.

2. If the Contractor has already been appointed before the Third Process Basic Design Meeting (1.6 above), this meeting shall also be the First Detailed Engineering Meeting. (Article 5.2.1. of the Agreement) If this is not the case, within ..... days from the appointment of the Contractor but not later than ..... days after the acceptance by LICENSEE of the Basic Engineering Package, the First Detailed Engineering Meeting shall be convened by LICENSEE according to Article 5.2.1 of the Agreement covering the following:

(a) Review the Basic Engineering Design Package and agree on all starting date, conditions and provisions which shall form the basis of Contractor's work;

(b) Agree on the scope and time schedule of the co-operation between Contractor and LICENSEE during the design work and the scope, content and extent of LICENSOR's participation

(c) Provisional scope, schedule and content of LICENSOR's participation in the procurement (Article 3.4.3) of equipment, erection of the plant (Article 3.4.5). The actual dates and durations are subject of review according to the progress of the work.

3. LICENSOR's responsibilities for review of detailed engineering as defined in Articles 3.3.5 and Article 5.2.2(b) shall extend but not be limited to the review the following design documents <sup>3/</sup> for conformity with the Process Engineering Design Package:

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<sup>1/</sup> These clauses (1.3 and 1.4) are optional and not always required. If 1.3 is removed an appropriate change should be made in Annexure 7.

<sup>2/</sup> The number of conferences is only indicative.

<sup>3/</sup> This is a check-list only.



3.1 Project Engineering Documents:

- Final Project Engineering Diagrams.
- Layout arrangement plant and elevation.
- Engineering Flow Diagram, including P and I.
- Equipment general specifications and engineering equipment list.
- Line Designation Tables.
- Requisitions for all items of equipments.
- Bid comparisons.
- Spare parts list.

3.2 Design Engineering and Drafting Documents:

- Specifications for pressure vessels.
- Specifications for storage tanks.
- Specifications for shell and tube exchangers.
- Specifications for underground drainage, sewers.
- Specifications for fire proofing.
- Specifications for design of buildings.
- Piping design guide.
- Specifications for instruments, their installation, instrument process piping, instrument air piping.
- Specifications for electrical design, installation.
- Mechanical design of reactors, vessels.
- Arrangement drawings of internals for shell and tube exchangers.
- Piping arrangement drawings of specified areas.
- Drawings and/or wiring diagrams of critical shut down system.
- Piping around critical items e.g. reactor.

3.3 Model Review (if appropriate)

3.4 Fabrication drawings of specified/critical equipment prepared by the fabricators.

This list shall be considered as informative only and shall be finalized at the First Detailed Design Conference.

.....

Commentary

In the case considered in this Agreement, the LICENSEE first concludes a License Agreement, then he prepares a tender specification based on the Process Engineering Design Package which is used to invite prospective Contractors to bid for the delivery of the Plant. In this case, the Contractor is selected several months after the delivery of the Process Engineering Design Package. The whole Process Engineering is worked out by LICENSOR with the co-operation and approval of the LICENSEE provided at the Process Engineering Conferences. In this way the LICENSEE's responsibility in accepting the design proposed by the LICENSOR is greatly extended. After the Contractor had been appointed, the First Detailed Engineering Meeting is the first occasion, for Contractor, LICENSEE and LICENSOR to meet and agree on the details of the future common work with the scope fixed in 2(a) and (b) above.

It is however, possible for LICENSEE to appoint his Contractor any time before the delivery of the Process Engineering Package. This solution reduces his tasks and responsibilities but prevents him from taking full advantage of what a detailed and precise Tender Specification could give him in the conclusion of the Contract for the construction of the Plant. In the latter case clause 1.6 of this Annexure is of particular importance.

The LICENSEE will usually find it difficult to extend LICENSOR's obligations beyond those fixed in the Agreement at the time of the First Detailed Engineering Conference. So it is most appropriate to agree in the Agreement itself on LICENSOR's obligations, identify the scope, content and field of LICENSOR's participation and set an upper limit to the man-days involved either for the whole or preferably for every kind of work required. So at the First Detailed Engineering Design Conference the Parties will have only to agree on the precise details and the time schedule of the work within the limits set by the Agreement.

TIME SCHEDULE OF THE ENGINEERING SERVICES

1. Delivery of Documents

<u>No.</u>	<u>Documentation</u>	<u>Made by</u>	<u>Delivery date (days) from receipt of basic design data under Article 4.1</u>
1.	Basic Data	Licensee	
2.	Basic Engineering Design Package (I. Part) as per clause 1.3 of Annexure 6; <sup>1/</sup>	Licensor	
3.	Basic Engineering Design Package (Comp.)	Licensor	

2.1 Process Engineering Design Meeting

<u>No.</u>	<u>Held at</u>	<u>Date</u>	<u>Duration</u>	<u>Participants (persons)</u>	
				<u>Licensee</u>	<u>Contractor</u>
1	Licensor's Office	....	(5) days	x	(2)
2	"	....	(5) days	x	(2)
3	"	....	(5) days	x	(2)

(illustrative example only)

<sup>1/</sup> This could be detailed further to cover other documents in Annexure 8.

3. Detailed Design Meetings

To be agreed upon at the First Basic Design Conference

<u>No.</u>	<u>Scope</u>	<u>Place</u>	<u>Duration</u>	<u>Licensors' participants (qualification and number)</u>
------------	--------------	--------------	-----------------	---

Maximum total Man-Days expected for  
Licensor's personnel:

4. Licensors' participation in procurement

<u>No.</u>	<u>Equipment item</u>	<u>Manufacturer</u>	<u>Expected supervision date</u>	<u>Duration</u>
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Maximum Man-Deys:

SCOPE AND CONTENT OF THE PROCESS ENGINEERING DESIGN PACKAGE

Scope of work of the LICENSOR

The LICENSOR shall supply the Process Engineering Design Package which shall provide sufficient process and mechanical design data such that a qualified engineering contractor can carry out the following:

- (a) Execution of detailed engineering design;
- (b) Procurement of all equipment and materials required for the construction of the Plant;
- (c) Construction of the Plant;
- (d) Start-up and commissioning of the Plant; and
- (e) Prepare safety and maintenance instructions for the Plant.

1.1 The LICENSOR shall provide all data for the Process Engineering Design Package in the (English) language. All data will be specified in ( ) Units.

1.2 The LICENSOR shall approve as agreed with the LICENSEE:

- (a) The Contractor's detailed engineering design for the Plant;
- (b) Specifications for the procurement of critical items of equipment.

Contribution of the LICENSEE

2.1 The LICENSEE shall supply the LICENSOR with the Basic Design Data according to the description in Annexure 6.

Content of the Process Engineering Design Package (check-list)

3.1. Basis of design and process description

This section of the package shall have information contained under the following headings:

- 3.1.1. Basis of design for all cases.
- 3.1.2. Feed and product specifications and properties.
- 3.1.3. Battery limit conditions.
- 3.1.4. Description of flow; this includes normal operations, start-up, shutdown and alternative operations.
- 3.1.5. Design features of process.
- 3.1.6. Physical and chemical properties; for streams whose properties have not been defined in 3.1.2. (Feed and product specifications and properties) and are considered essential within the process, e.g. reactor effluent streams will have their physical and where relevant chemical properties listed. Hazardous materials used within the unit will have their properties listed within this section.
- 3.1.7. Summary of estimated utilities, including electrical power, steam, condensate, boiler feed water, fuel, cooling water, process water, plant air, etc. This will be a schedule of estimated individual users, totalling up to the maximum estimated utility quantities for the unit. This over-all maximum will be for one consistent case for each utility. Where the estimated maximum utility quantity for a particular item of equipment is not part of this consistent case, this maximum will be stated separately.
- 3.1.8. Estimated catalyst and chemical consumption. Initial catalyst charge and subsequent catalyst and chemical consumption will be tabulated for each unit.
- 3.1.9. List of effluent streams. Liquid and gaseous effluents requiring further treatment before disposal will be tabulated. This listing would be limited to streams produced from the process only and would not include furnace effluents.
- 3.1.10. Process flowsheets.

These diagrams will contain the following information:

- . All process equipment shown diagrammatically marked with an equipment number;
- . Operating temperature and pressure of equipment;
- . Main process lines (shown marked with a stream number where applicable to the mass balance) including direction of flow;
- . Main process controls;
- . All lines, essential for understanding the mass balance around each piece of equipment will be shown (and only those);

- . All figures will be given in the defined units of measurement;
- . Heat and Material Balance, and Pressure Balance.

For each stream number on the Process Flowsheet, the following information shall be given where required for complete understanding of the heat and material balance, and pressure conditions.

- Total hourly flow rate (mass/volume);
- Hourly molar flow rate for each major components;
- Molecular weight;
- Pressure;
- Temperature;
- Density.

3.1.11. Materials of construction flowsheet. There will be included a "Materials of Construction Flowsheet" to provide the information (as described in Exhibit ).<sup>1/</sup>

### 3.2. Process and engineering design specifications

The information contained within this section will be presented under the following headings, details of which are further developed in this section.

#### 3.2.1. Equipment list

This will include at least the following:

- . Equipment identification letter and number;
- . Equipment description.

#### 3.2.2. Equipment data sheets and specifications.

##### 3.2.2.1. Vessels

A standard process sketch will be provided showing:

- . Maximum operating temperatures and pressures;
- . Mechanical design temperature and pressure;
- . Materials of construction and corrosion allowance;
- . Diameter and height or length;
- . Number, type and spacing of trays for towers;
- . Number, size, rating and location of nozzles (location of nozzles will only apply to special height requirements of nozzles; orientation is not part of this scope unless for process design purposes);
- . High and low liquid levels;
- . Insulation requirements;
- . Details of special internals such as pans, distributors, mist eliminators, supports, etc.;
- . Catalyst type, size of bed, bulk density and design.

<sup>1/</sup> Sample exhibits to be added where required. It is recommended that such exhibits should be provided by LICENSOR and checked by LICENSEE.



Where applicable, tray process information will be provided. See "Exhibit - Trays Process Specification Sheet".

Specific design and fabrication requirements will be detailed, e.g. regular temperature/pressure cycles will be specified.

3.2.2.2. Heat exchangers and air coolers

Specification sheets will be provided giving all process and mechanical design data which is required. See "Exhibit - Shell and Tube Exchanger Process Specification Sheet" and "Exhibit - Air Cooled Exchanger Process Specification Sheet" for data requirements.

Further specific design information which would be provided if necessary to establish the design includes, for example:

- . Limiting transfer rates where applicable;
- . Limiting viscosities and pour points;
- . Vaporization and condensation curves;
- . Restrictions on combining air fin services;
- . Alternative specifications for individual services;
- . Specific design and fabrication requirements.

In general, all necessary data to prepare ratings will be provided, however complete ratings will not be provided.

Where kettle type exchangers are to be used, the specification shall include a sketch or specific information giving:

- . Vapour space;
- . Surge volume required;
- . Nozzles;
- . Instrumentation, etc.

Generally only the Materials of Construction will be given in the "Construction" Section of the specification sheets.

3.2.2.3. Fired heaters

Specification sheets will be provided giving all process and mechanical design data which is required. See ("Exhibit - Fired Heater Process Specification" for data requirements.) 1/

Further specific design information which will be provided includes, for example:

- . Vaporization curves;
- . Limiting fluid peak temperatures;
- . Limiting transfer rates or velocities;
- . Type of heaters and coil arrangement;
- . Control specifications;
- . Firing equipment;
- . Whether steam - air decoking is required;

1/ See note on page 120.

- . Specific design and fabrication requirements;
- . Whether coil temperature and pressure profile required from vendor;
- . Type of terminal fittings;
- . Fuel type and conditions.

3.2.2.4. Pumps

Specification sheets will be provided giving all process and mechanical design data which is required.

Data will be included for alternative duties.

Further specific design information which may be provided includes, for example:

- . Corrosion allowance;
- . Alternative specifications if necessary for individual services;
- . Sealing requirements;
- . Flushing requirements;
- . Specific design and fabrication requirements.

3.2.2.5. Compressors

Specification sheets will be provided giving all process and mechanical design data which is required.

(All design cases will be included).

Further specific design information which will be provided includes, for example:

- . Materials of construction;
- . Corrosion allowance;
- . Special mechanical features required;
- . Control requirements;
- . Specific design and fabrication requirements.

3.2.2.6. Miscellaneous equipment

This includes all mechanical handling equipment, package units such as inert gas generators, driers, specialities such as scrubbers, cycle timers and vacuum equipment and miscellaneous items such as filters, strainers and process steam traps. Complete duty specification sheets will be provided which would include all process and mechanical design data as required for the equipment. Such specifications may include design and fabrication requirements.

3.2.2.7. Relief valves

Specification sheets will be provided giving all process design data which is required.

Certain emergency risks as identified in Exhibit may require review by detailed engineering contractor after equipment selection. The relief header will normally be designed by the engineering contractor.

3.2.2.8. Instruments

Specification sheets will be provided giving all process design data which is required. Data for any special instruments required for start-up, shut-down and safety, will be included.

Further specific design information which will be provided includes, for example:

- . Material of construction;
- . Vaporization across valves, sealing, purging or flushing requirements, including any special process design considerations, i.e. pour point;
- . Alternative operating conditions (specifically for minimum and maximum flow, to ensure proper control and readability of all instruments);
- . Specific mechanical design and fabrication requirements will be detailed.

This information will be supplied for all major instruments. Detailed data on minor instruments, e.g. pressure gauges, level gauges, etc., will not be included.

3.2.3. Relief valve loading listing

A summary will be provided of the loads from each relief valve for each emergency condition under which the relief valve opens, e.g. fire, power failure, steam failure (and other utility failures), blocked in condition, etc.

3.2.4. Process line summary list

A summary will be provided for all process lines. However, it will be the responsibility of the engineering contractor to check the hydraulics of the unit.

3.2.5. Preliminary engineering flowsheets (P and ID)

This will be a complete first issue of the Engineering Flowsheet and will include:

- . All process equipment;
- . Line size and material specification for all lines;
- . Maximum operating temperatures, insulation tracing and jacketing requirements of lines (heat conservation, personnel protection, process stabilization or "not insulated" only);
- . All valves and check valves;
- . Significant equipment details;
- . Tower and vertical drum tangent line elevations;
- . Horizontal drum minimum elevations and slope;

- . Relative elevations of all equipment and piping where gravity or 2-phase flow is taking place, e.g. reboilers, condensers, seal pots;
- . Direction of flow on lines;
- . Required line slope, relative location of equipment or special conditions such as required vertical loop dimensions, gravity lines with or without pockets, etc.;
- . Vents and drains additional to Engineering Standards required for process reasons;
- . Steam, hot water or solvent tracing of lines and instruments;
- . Gas or liquid purging or flushing of control valves, instruments or relief valves;
- . All start-up, bypass, shutdown and emergency lines and lines for alternate operations;
- . All instruments required for proper operation of the plant (indicating any special types required);
- . Instrument numbers;
- . Any special instructions, e.g. dead leg distances on slurry lines;
- . Utility distribution systems would not be included on these flow sheets.

3.2.6. Preliminary plot plan

This will be a suggested plot plan based on the LICENSOR's know-how of requirements of normal and emergency operation, safety and maintenance requirements. It will include preliminary layout of the equipment and elevation diagrams.

- Special requirements (analysers, sample connection);
- Recommended suppliers.

3.2.7. Drainage and effluent disposal

This will cover the suggested layout and materials of construction.

3.2.8. Basic data for piping

- Fluid handled;
- Operating pressure and temperature;
- Design pressure and temperature;
- What phase? Liquid, vapour or both?;
- Specific gravity and viscosity;
- Construction materials;
- Insulation required;
- What kind of test is necessary for the pipe (pneumatic or hydrostatic) if any special test is required, explain it;
- List of the main lines.

3.2.9. Auxiliary services

Steam (all the pressure levels), cooling water, process water, inert gases, plant and instrument air, chemicals, etc. consumed in each equipment and a summary.

3.2.10. Catalyst, chemicals

- Specific characteristics, name, size, quantity.
- Recommended suppliers. Preferred supplier. State reasons.

3.2.11. Vent system

- Equipment required, fluid, flow, temperature and pressure.
- Special requirements.
- Suggested piping arrangement where required.
- The materials of the pipe and equipment must be referred to the ASTM code;

3.2.12. Safety requirements

- Equipment required.
- Monitors, eyewashers, shower and sprinkles location.
- Special requirements.

3.2.13. Building specifications

- Suggested layout of the plant building, control room, electrical switch room, and other building.
- Indicative sizes of the respective buildings.
- Type of construction in each case.

3.3.<sup>1/</sup> Basic data for operating manual

The operating guide will include an outline of start-up, shut-down and alternative operations. It will also indicate emergency procedures covering utility failures and major operating upsets. Its scope will be sufficient for the engineering contractor to prepare a comprehensive operating manual. In addition, this section will describe special safety features incorporated in the design of the unit. Data will include:

- . Start-up procedures;
- . Normal operation procedure;
- . Normal shutdown procedure;
- . Emergency shutdown procedure;
- . Reduced drawings of heaters, vessels, towers and reactors;
- . Reduced drawings of process and mechanical P and I drawings;
- . Data sheets of mechanical equipment.

with the following details:

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<sup>1/</sup> The Operating Manual will usually be prepared by a representative of the LICENSOR and will be revised if necessary by the Contractor (Article 6). This Manual should be revised and approved by the LICENSOR.

3.3.1 Description of process:

- (a) Description of Process - A brief discussion of process flow to provide adequate background to the plant operating personnel.
- (b) Process specifications and Process Flow Chart - Quality of feedstocks, composition of various streams and designed yields and qualities of products, intermediates and by-products.

3.3.2 Process Operating Conditions:

A simplified discussion of cause and effect, exemplified where possible, of operating variables with consequent changes in yields, purities etc.

3.3.3 Details of Operating Procedures:

- (a) Preliminary operations - preparation and inspection of equipment before start-up. Run in procedure on pumps, compressors etc.
- (b) Start-up procedures.
- (c) Normal operation.
- (d) Shut down procedure.
- (e) Special operations - Catalyst regeneration, switching of cyclic systems, steam air decoking etc.
- (f) Emergency Procedure - anticipated emergencies and recommended procedures to result in maximum safety of personnel and equipment.
- (g) Detailed flow charts and process equipment.

3.3.4 Control Systems:

Employed with details on any special provisions and its bearing on the operations.

3.3.5 Equipment Summary:

Details on equipment by categories and in accordance with the agreed coding system.

3.3.6 Utility and Utility Summary:

On the basis of utility levels agreed to for the plant, utility requirements on guaranteed and expected figures for both plant and its auxiliary/off-site facilities.

3.3.7. Operating Records:

The suggested format for proper maintenance of operating records through:

- a. Daily log sheet.
- b. Management control - exception reports.
- c. Product test record for quality control at various stages in the plant.

3.3.8 Personnel required for operations and maintenance:

Suggested organization for operations and maintenance of the plant giving:

- a. Supervisory Staff - with duties and responsibilities.
- b. Operating staff - duties, responsibilities and operating positions.

3.3.9 Safety of plant and personnel:

Rules and regulations governing conduct in the operating area with special precautions to be followed. First aid facilities to be provided shall be discussed e.g. eye baths, emergency showers etc. The proper use of special safety equipment will be described.

3.4 Basic data for maintenance manual

- Particular emphasis: preventive maintenance;
- Maintenance instructions for each equipment, including specific types of lubricant/grease required; 1/
- Periodicity of major shutdown for regular overhead/ maintenance.

3.5 Analytical Methods Manual describing in detail all the methods of analysis for all raw materials, process streams products, by-products, catalysts and chemicals required for the efficient operation of the Plant.

3.6 List of catalysts and chemicals required for the initial operation of the Plant and for one year's production, indicating specifications, quantities, recommended source of procurement and packing, storage and handling instruction.

3.7 General design information

The information contained in this section will essentially be akin to the data supplied by the LICENSEE as outlined in 2.2. However, as some data may be supplied by the LICENSOR, the total design information is reproduced for the benefit of the engineering contractor.

1/ This may be restricted to critical items. This will in any case be checked by the Contractor.

This data will include but not necessarily be limited to:

- . Outlet steam conditions for equipment feeding steam into Plant headers;
- . Inlet steam conditions of equipment using steam from Plant headers;
- . Battery limit conditions for boiler and steam generator feedwater;
- . Battery limit conditions for condensate return systems;
- . Voltage and frequency for electrical power;
- . Analyses of available water streams;
- . Fuel data;
- . Other available utility data;
- . Climatic data;
- . Site information;
- . Equipment design information (e.g. preferred tube lengths, philosophy for design conditions, etc.);
- . Relief and blowdown philosophy.

### 3.8 LICENSOR's standard drawings

The standard drawings will be referenced in the Process and Engineering Design Specifications and represent design details and practices which are part of the mechanical specifications.

### 3.9 Name of vendors of critical equipment

No.	Equipment	Possible vendors	References
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### 3.10 Mechanical specifications

The mechanical specifications will represent LICENSOR's or LICENSEE's current standard practice for design and installation of the equipment in the particular process unit.



CATEGORIES, QUALIFICATIONS AND EXPERIENCE OF PERSONS TO BE ASSIGNED BY LICENSOR. EXPENSES OF AND FACILITIES FOR LICENSOR'S PERSONNEL ASSIGNED TO WORK FOR THE LICENSEE

1. Terms and conditions of personnel services

1.1 The LICENSOR shall assign such qualified and competent personnel as are necessary for the proper and final implementation of the Contract. Such personnel should be fit for working in a (tropical) climate.

1.2 At the First Detailed Engineering Design Meeting, the parties shall further agree upon the details about the expected initial number of each category of the LICENSOR's personnel and duration of their assignment.

2. List of personnel to be assigned by the LICENSOR

2.1 The LICENSOR shall assign the following personnel for the period noted against each person/category of persons.

<u>Category</u> <sup>1/</sup>	<u>Expected number</u>	<u>Total expected man-days</u>
x x x	x x x	x x x
x x x	x x x	x x x

2.2 The period of stay mentioned above is only indicative and the parties shall agree on the definitive figures at the First Detailed Engineering Meeting. (Article 5.2.1 of the Agreement.)

3. Charges for the LICENSOR's assigned personnel

3.1 (a) The charges for the LICENSOR's assigned personnel for each day of absence from Home Office shall be as follows:  
(example only)

Rates per day (currency)

Start-up Team Leader

Specialist Engineers

(others may be specified)

<sup>1/</sup> This category should be the same as in Annexure 10.

(b) (It is recommended that this should not have an escalation clause. However in some cases this may be required. This escalation in such cases should be based on an index specified in this clause, which index should be an officially published index of the LICENSOR's Government agencies).

The above charges are for an 8 hours per day, 40 hours per week day time work.

### 3.2 Overtime charges

Overtime charges in accordance with the contract shall be paid as follows:

Up to ( )hours/week	( )% of normal rates
above ( )hours/week	( )% of normal rates
for weekly and public holidays	( )% of normal rates
for night shift	( )% of normal rates

No additional payments will be made for overtime or night shift.

3.3 In addition to what is specified under 3.1 and 3.2, the following allowances, services and facilities shall be paid by LICENSEE to the LICENSOR's personnel deputed to work under the Agreement:

#### 3.3.1 Local Allowance

The LICENSEE shall pay to each of the assigned personnel engaged in the work a living allowance at the rate of (amount in local currency) for each calendar day of presence to site.

#### 3.3.2 Travelling

Tourist class return air fare for each assignment for each assigned personnel from the Home Office to site by (air carrier) or an IATA carrier at the discretion of the LICENSEE.

Transport within (LICENSEE's country) by plane (economy class) or rail (air conditioned class) on the rail route for the assigned personnel on their arrival in and departure from site and for travelling on official work.

3.3.3 The LICENSEE shall also provide free of cost to the LICENSOR's assigned personnel the following:

- 3.3.3.1 Furnished residential accommodation, as well as water, electricity and gas for domestic use.
- 3.3.3.2 Furnished office accommodation, as well as secretarial assistance and facilities for official communications including telephone and telex services.
- 3.3.3.3 Medical assistance to the personnel and their facilities to the extent available at the LICENSEE's own or nominated medical centre(s).

CATEGORIES, QUALIFICATIONS AND EXPERIENCE OF PERSONS TO BE TRAINED BY LICENSOR

Reference Art. 3.6

Illustrative Example

	Category	Qualifications	Experience
A. Group of Engineers	Process Engineers	Degree in Chemical Engineering	Not less than....years in projects or plant operations or technical services, trouble shooting.
	Chemists for Process Laboratory	Degree or Diploma in Chemistry	Not less than.....years in chemical plant laboratory or research laboratory.
	Mechanical Engineers	Degree in Mechanical Engineering	Not less than.....years experience in project engineering or construction or preventive plant maintenance or corrosion control or workshop.
	Electrical Engineers	Graduate Electrical Engineers	Not less than.....years experience in electrical installation covering different types of motors, PCC, power distribution or maintenance and procedures for preventive programmes of all electrical equipment.
B. Group of Foremen			
1. Chemical Process Section	Foremen for operations in each section	Diploma in Chemical Engineering/ Technology or Graduate in Science	Not less than.....years experience in operation of similar plants in supervisory position.
2. Polymerisation Section			
3. Extrusion and finishing section	Foremen (Maintenance)	Diploma in Mechanical/ Electrical/ Instrument Engineering	Not less than.....years experience in maintenance of chemical plants or carrying out of repairs in workshop.

	Category	Qualifications	Experience
C. Product Application and Market Development	Senior Marketing Officer	Degree in Polymer Science or Degree in Chemical Engineering (with polymer science as elective subject) or Masters degree in Science.	Not less than.....years experience in organic chemicals.
	Senior Technologists (Product Application)	- do -	Not less than.....years experience in processing of polymers.

Note: It is assumed that the operating, maintenance and product applications staff of shift engineers, technicians, panel controllers and operators will be trained by the above mentioned senior personnel through extensive in-plant training and simulated training on trainer of the carmody type.

(Number and period of training to be specified in Annexure 9.)

GUARANTEE FIGURES FOR CONSUMPTION OF RAW MATERIALS VOLUME AND COMPOSITION OF EFFLUENTS

Specification of the Raw Materials

I. Illustrative with reference to Polypropylene

Reference Art. No. 3.7

A. LICENSOR guarantees that consumption of raw materials, catalyst and chemicals and utilities will not exceed the quantities indicated below per 1000 kg of polypropylene.

Raw Materials

- 1. Propylene ..... kg
- Catalysts and chemicals ..... kg
- 2. Titanium trichloride ..... kg
- 3. Diethyl aluminium Monochloride ..... kg

Utilities

- 4. Low pressure saturated steam ..... kg
- 5. Medium pressure steam ..... kg
- 6. Electric power ..... Kwh
- 7. Cooling water ..... m<sup>3</sup>

Note:

- a. The consumption of steam is guaranteed for process use only and is subject to the condition that heat insulation is installed in accordance with LICENSOR'S specifications.
- b. The electric energy consumption guarantee figure is an average for the melt flow range from            to           , and is subject to the condition that machines and electric motors installed conform with LICENSOR'S specification.

B. Specifications of raw materials, catalyst, chemicals and utilities

Propylene	99.5 % min.
Ethylene	25 ppm max.
Ethane	250 ppm max.
Propane	0.5 % max.
Nitrogen	300 ppm max.
Water	50 " "

Hydrogen	100 ppm max.
Allene	10 "
Acetylene	1 "
Butylene	20 "
Butadiene	10 "
CO	5 "
Carbon dioxide	5 "
Oxygen	10 "
Sulphur	1 "
Chlorine	1 "
Pressure	20 bar min
State	liquid

Titanium Trichloride

Titanium trichloride	80% by wt. min.
Titanium tetrachloride	1% by wt. max.
Iron as Ferric Chloride	0.2% by wt. max.
Residue (after solution in methanol)	0.2% by wt. max.
Activity	160 min.

Aluminium Diethyl Monochloride - Solution

Solvent	-	Heptane
Concentration	-	10% by wt.
Total chloride/total aluminium ratio	1.35 ± .02	
Active aluminium	9.8% by wt. min.	
Composition of gases obtained by decomposing basic aluminium diethyl monochloride:		

Hydrogen	0.1 max.
Ethane	90 to 99%
Total C <sub>3</sub>	0.1% max.
Isobutane	4% max.
n-butane	6% max.
Butylenes	0.1% max.

Demineralised water:

Total hardness	0
Total alkalinity (as Ca CO <sub>3</sub> )	5 ppm max.
SiO <sub>2</sub>	0.1 ppm max.
pH	8
Cloudiness	0
Conductivity	1 pcs/cm. max.
Temperature	Ambient
Pressure	(4) bar min.

Steam

Saturated at 3.5 bar

Electric Power

Three phase, alternating 415V  $\pm$  10%  
50Hz  $\pm$  3%

Single phase, alternating 230V  $\pm$  10%  
50Hz  $\pm$  3%

Three phase, alternating 6.6V  $\pm$  10%  
50Hz  $\pm$  3%

Cooling Water

Inlet temperature 27°C (max 33°C as seasonal peak)

Inlet pressure 4 bar min.

Fouling factor not higher than 0.006 h m<sup>2</sup>/K Cal, non corrosive

hangellier index 0.1 - 0.3

II. Illustrative with reference to VCM

- A. LICENSOR guarantees that consumption of raw materials, catalysts and chemicals and utilities will not exceed the quantities indicated below per 1000 kg of VCM.

<u>Raw Material</u>	<u>Per 1000 kg VCM</u>
1. Chlorine	.....kg
2. Ethylene	.....kg
	<u>Per 1000 kg EDC</u>
1. Chlorine	.....kg
2. Ethylene	.....kg

<u>Utilities</u>	<u>per thousand kg VCM</u>
Steam	0.8 MT
Cooling Water	220 M <sup>3</sup>
Power	200 Kwh
Fuel gas (net heating value)	0.76 million Kcal
Process Water	0.03 M <sup>3</sup>



B. Effluents and Emissions

The quantity and quality of the effluents and emissions from the plant shall not exceed the following under normal operating conditions: (Specifications of effluents and emissions)

.....  
.....  
.....

C. Specification of raw materials and utilities

Raw Materials

<u>Ethylene</u>	99.7 % by vol min.
Methane and Ethane	0.3 % by vol. max.
Propylene	30 ppm by vol max.
Butylene and Heavier	70 ppm by vol max.
Sulphur	2 ppm by vol max.
Ammonia	2 ppm by vol max.
Acetylene	5 ppm by vol max.
Methanol and water	20 ppm by vol max.
Pressure	( ) bar min.
<u>Chlorine</u>	98.5 % by vol min.
Hydrogen	0.25 % by vol max.
Oxygen	0.3 % by vol max.
Chlorinated Organics	0.1 % by wt. max.
Bromine	200 ppm by wt. max.
Water	100 ppm by wat. max.
Pressure	( ) bar min.

Utilities

Steam	17.5 bar or 10.5 bar
Cooling Water	33°C (12° Rise)

Commentary: Tolerance limits shall be agreed taking into account the accuracy and repeatability of the measuring facilities and the importance of the individual items. For utility consumption, compensation among the different categories could be agreed upon.

FORM OF BANK GUARANTEES

Bank Guarantee for Advance Payment.

This Guarantee No. .... made this day .... between (.....) a Company incorporated and having its Registered Office at ..... (hereinafter called BANK<sup>\*/</sup>, which expression shall unless repugnant to the context or contrary to the meaning thereof include its successors and assigns) of the one part, and ..... (hereinafter called LICENSEE which expression shall unless repugnant to the context or contrary to the meaning thereof, include its successors and assigns) of the other part.

1. WHEREAS in Article 10.1 of the Contract dated..... ( hereinafter called Agreement), between LICENSEE and ..... A Company incorporated in ..... (hereinafter called LICENSOR which expression shall unless repugnant to the context or contrary to the meaning thereof include its successors and assigns) for supply of a Plant, as envisaged in the Agreement it is stipulated that the sum of ..... will be paid by ..... as advance payment against a Bank Guarantee of equal amount to be issued by the BANK.
2. WHEREAS in fulfilment of the said Agreement and against receipt of said advance by (name of LICENSOR), the LICENSOR has agreed to furnish a Bank Guarantee as hereinafter contained.
3. In consideration of the above, the BANK hereby guarantees as a direct responsibility, to pay to LICENSEE any amount up to a total sum of .....
4. The BANK shall effect payment under this letter of guarantee immediately upon LICENSEE's written request stating that LICENSOR did not fulfil his Contractual obligations without being entitled to enquire whether this payment is lawfully asked for or not.
5. In any case, however, the BANK's responsibility under this letter of guarantee comes into force as soon as and as far as the advance payment of..... has been received by the BANK in favour of LICENSOR.

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<sup>\*/</sup> This could be a Bonding Company and this could then be a Bond.

6. This letter of guarantee shall be initially valid for a period of ..... months from the EFFECTIVE date and shall be extended by suitable periods in accordance with Agreement (but not more than 6 (six) months at a time). This guarantee shall be returned to the BANK after its expiry unless extended beyond this period for any reason whatsoever.
7. In the event of force majeure or in the event of recourse to arbitration according to the Agreement, the validity of the present guarantee shall be extended for a period to be mutually agreed upon.
8. This guarantee shall be in addition to and shall not affect or be affected by any other security now or hereafter held by LICENSEE and LICENSEE at his discretion, and without any further consent from the BANK and LICENSEE's right against the BANK may, compound with or give time or other indulgence to or make any other arrangement with LICENSOR and nothing done or omitted to be done by LICENSEE in pursuance of any authority contained in this guarantee shall affect or discharge the liability of the BANK.

\_\_\_\_\_  
(Bank)  
\_\_\_\_\_  
\_\_\_\_\_

MECHANICAL COMPLETION AND  
READY FOR START-UP

The Performance Guarantee Test shall be run only after the Mechanical Completion Certificate has been issued and the Plant's "Ready for Start-Up" condition has been demonstrated.

"Mechanical Completion"

shall mean that the Licensed Plant has reached a stage when adequate checking has shown that

- (a) all columns, vessels, pumps, heat exchangers, piping and other mechanical equipment have been installed, cleaned and flushed out in full conformity with flow schemes, construction drawings, project specifications and manufacturers recommendations;
- (b) all instruments, control valves, differential pressure devices interlocks, programmers and other instrumentation are correctly installed functioning and that all preliminary adjustments have been made;
- (c) all electrical supplies have been installed and protected as prescribed; that motors have the correct voltage supply, the correct speed, HP and direction of rotation and are free with the associated equipment to turn without obstruction;
- (d) all relief devices, relief valves and bursting discs are correctly installed for the safe functioning of the Licensed Plant;
- (e) all effluent handling facilities, flares and incinerators are ready to accept effluent/wastes;
- (f) all ventilation systems and other systems for the protection of the operators and the environment are available and functioning;
- (g) all safety facilities, fire-fighting, first aid, are adequately available.

"Ready for Start-up"

shall mean that the Licensed Plant has reached a stage when all conditions relating to Mechanical Completion have been accomplished and that:

- (a) all legally required tests have been carried out and licenses and governmental authorizations have been granted;
- (b) sufficient trained operators and maintenance personnel familiar with the unit and the ..... Process (including competent interpreters) are available, and that the laboratory is ready to provide full analytical service;
- (c) all utilities and services are available in the quantities required under the conditions prescribed;
- (d) all pressure and vacuum drop testing has been satisfactorily completed, with all instruments correctly protected during testing and correctly returned to service thereafter;
- (e) all preliminary process operations have been carried out and all equipment has been cleaned, dried and returned to a state of readiness to accept process materials;
- (f) all mechanical equipment has been adequately tested under load and has been properly lubricated;
- (g) all necessary feedstock, chemicals, catalysts are in storage or available in sufficient quantities to permit Start-up and subsequent continuous operation.
- (h) the Plant has been sufficiently cleaned up to permit safe movement of operators.



