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Conversion and Final Report

For

Phasing out CFC-11 with HCFC-141b at six companies and phasing out CFC-11 by conversion to Water Blown Technology at one company (Umbrella Project)

Project Number: MP/CPR/01/167

Contract Number: 2002/055

Beijing China

November 2004

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1 Situation of PU rigid foam sub-sector in China

The following branches represent the sub-sector of rigid PU foams manufacturing and application:

1.1 Production of PU sandwich panels by continuous process

Most of the large-scale factories in this branch were established in 1996-1997 as a result of rapidly growing market demands by civil and industrial construction industries as well as for the big cool storages.

1.2 Production of PU insulation panels by discontinuous process and PU spray foams

Due to the specifics of the current process of the industrial and economic development in China, this branch of the sub-sector, similar to other sectors and sub-sectors of the industry, is in the "ongoing" process of growing, transformation, restructuring, etc. The main application of the products is for the commercial refrigeration sub-sector and insulation in civil and industrial construction.

1.3 Situation of automotive refrigeration sub-sector in China

The Transportation-Refrigeration Sector in China is divided to three sub-sectors, automotive, shipping and railroad. In the first step only the automotive sub-sector will be taken into consideration, the remaining two sub-sectors are matters of later discussions. According to the statistics of 1995-1999, there are altogether 35 refrigeration car manufacturers in China. Most companies have very small production capacity.

1.4 Equipment situation

The enterprises in the automotive sub-sector are dealing with various kinds of PU foams spray insulation at their premises as well as provide services for clients "on spot". Moulded laminated (sandwich) and not laminated (boards) rigid PU panels as well as doors and angular components are produced at the factories using locally made foaming machines with output 60-120 kg/min. These machines as well as the spray foam machines (also mainly locally made) with output 6-12 kg/min are used for manufacturing of rigid PU. Because of the diversified production programme and "on-spot" services, the range of density of the insulating foams is between 40-50 kg/m^3.

2 Policy of Chinese government to the medium and small sized foam enterprises.

2.1 Project implementation means

Since joining the Montreal Protocol in 1991 and especially when "Nation Plan (strategy) " has been approved, it is marked that Chinese government began to officially carry out various obligations stipulated in the Montreal Protocol. In the past ten years, Chinese government has fully utilized the grants from UN multilateral funds, and carried out renovation of some foam production enterprises, which use CFCs as the foaming agent. In the early stage phase-out of ODS materials has been carried out mainly in form of individual project implementation so as to reduce the pollution of atmosphere caused by foam sector.

In view of the features of large quantity, small scale, scattered locations and coexistence of multiple form of ownership of foam enterprises in Chinese foam sector and in accordance with

national policy on industry restructuring, SEPA, during operation of the recent projects, utilize the comprehensive planning and management capability of government departments, try to phase out ODS in form of umbrella project, i.e. industry restructuring, conversion and consolidation. The meanings are as follows:

- To increase effectiveness of the grants utilization. After restructuring, the structure of the renovated enterprise can be strengthened and optimized, their market competitiveness can be enhanced, and the renovated enterprises can be avoided to go bankrupt or reduce output.

- To reduce excessive counterpart funding input by the enterprises and lighten the burden on enterprises.

2.2 Formulate national strategy for ODS phase-out in the PU sub-sector

The "gradual" ODS phase-out approach from the PU foam sub-sector and preparation of the strategy plan for the entire sub-sector in cooperation with implementing agencies is considered as the most effective concept to implement the Country Programme. In view of a great number of the factories to be converted, the Government of China adopted a strategy approach including to accelerate the process of the "in-depth" inventory exercise of the sector and to apply the concept of the "industrial rationalization" at the later stage of the ODS phase-out from the PU sub-sector for the umbrella and terminal umbrella projects.

3 Activities of SEPA for phase-out of ODS materials utilizing capitals from home and abroad.

On behalf of Chinese government SEPA vigorously looks for various channels from home and abroad, quickens the steps of ODS phase-out, carries out the obligations stipulated in the Montreal Protocol, Copenhagen Revised Agreement and Kyoto Declaration which Chinese government shall bear. Besides, SEPA fully utilizes the favorable conditions and does the best to win over participation and cooperation of government bi-lateral cooperation organization like GEF and CTZ from Germany, further strengthens and quickens the process of phase-out of ODS materials in China. At home SEPA makes great efforts to coordinate with sector management departments of governments, guides the sectors and departments related with ODS phase-out work to carry out ODS phase-out work according to their respective features. Under cooperation with international execution organizations, Chinese government has become the leading roles in the phase-out work.

4 Cooperation between SEPA and international execution organizations like UINDO

Since joining Montreal Protocol, Chinese government has fruitfully cooperated with four international execution organizations of World Bank, UNDP, UNIDO and UNEP starting from single project, which has achieved the desired goal, fulfilled various obligations specified in the Montreal Protocol, which Chinese government shall bear. The scale of cooperation between Chinese government and international execution organization is continuously extending. The project implementation mode has changed from individual project form to implementation mode of sector mechanisms. The Chinese government has carried out ODS phase-out plan for the whole sector in the fields of fire fighting halons, closure of CFCs and solvents production plants, auto air-conditioner, electronic washing, tobacco etc. We cooperate with UNIDO in the foam sector by

implementing projects in PU and EPE/EPS sub-sectors. Under the guidance of national ODS phase-out strategy, we develop phase-out plan for umbrella projects. Especially in recent years the fields of cooperation with UNIDO is extending year after year. Up to now SEPA has signed contracts for umbrella projects with UNIDO in PU rigid foam and EPE/EPS sub-sectors.

5 Mode of joint implementation of umbrella project with UNIDO

Mode of joint implementation of umbrella project is a new implementation mode, which is explored by SEPA, and UNIDO based on experience of implementation of the individual project in the past. The practice has proved that changing from the original mode of individual international implementation mechanism to the mode of joint implementation of Chinese government with international execution organization is a very successful attempt. This mode fully integrates the respective advantages (i.e. the advantages of which UNIDO has very rich experience on management of various projects and SEPA knows well the sector situation), so that the whole project can be executed smoothly. The detailed project implementation is carried out under the close joint supervision of UNIDO and SEPA. If renovation of the remaining factories is carried out in form of individual, the project implementation cycle will undoubtedly be affected, so that the phase-out goal of which our government shall fulfill in the certain period cannot be realized. Some of the remaining enterprises are scattered in the region with very inconvenient communication, it is very difficult that those projects are still implemented by the international execution organization. Because of the requirement of our national policy on foam sector and insufficiency of grants capital, the umbrella project are involved in conversion and consolidation, and then touch off a great deal of coordination work which is very difficult and over elaborate. Those detailed implementation work can only be completed by SEPA on behalf of Chinese Government.

In view of implementation situation of the former umbrella projects, our cooperation is very satisfactory. SEPA has recognized that success of the former umbrella projects is closely interrelated with the following efforts from UNIDO.

- Understand the difficulty of project implementation, fully arouse the enthusiasm of every sides;
- Cause-devotion spirits of the UNIDO personnel;
- Fully understand the features of umbrella project in China; fully support the activities of industry restructuring for project in China.

6 Project organization structure, project coordination and supervision

The umbrella project, which is jointly carried out with international execution organization—UNIDO is the first attempt since Chinese Government began to fulfill the Montreal Agreement. As the official representatives of Chinese government, SEPA is the highest administration organization of the project. In order to smoothly execute the project, SEPA has established a set of related organization mechanism to coordinate and supervise the implementation situation of project. First, SEPA formed a special work group (SWG), and recruit the personnel from the enterprises which has experience on implementation of projects using UN multi-lateral funds to participate the project management work of SWG, so that they can enter into

the spirit of character as the work is carried out. Under the leadership of the Project Management Office (PMO) under Foreign Trade and Economics Office of SEPA, SWG is responsible for coordinating the relationship among the project parties, directly supervises the project implementation, solves the big problems occurred during project implementation. SWG is also in charge of examining and approving implementation plan, formulation of management file, way of invitation for bids, enterprise conversion and restructuring and payment of fund which are needed during project implementation, entrusts auditing organization to audit the project, organizes project acceptance, signs protocol of project assets transfer. As the main leader of the foam work group, PMO provides necessary working conditions and business supporting for SWG. As the standing organization for automotive refrigeration foam umbrella project, SWG is responsible for routine management work of the umbrella project and linking between international organization and project enterprises as well as related departments, accepts work inspection from the international execution organizations, submits project progress report according to the requirement, organizes the engineering service provider for the umbrella project to carry out technical and safety training on the personnel from the project enterprise. SWG is also responsible for selecting the experienced company to be as the domestic execution organization to participate the management for the whole project. The Foreign Trade and Economics Office of SEPA sign related work agreement with the domestic execution organization. SWG is responsible for inspecting the working situations of domestic execution organization and coordinating the relationship with project enterprise, solves the possible problems occurred during implementation, checks the important files like the bidding document, bid evaluation principle and bid evaluation report submitted by domestic execution organization, examines the payment application raised by domestic execution organization, organizes and summarizes project completion report, cooperates with international execution organization to audit the project, provides the related information and help which are needed for auditing. Entrusted by the PMO of SEPA, SWG is also responsible for managing the project capital, accepts payment of the project capital and reserve fund from the international execution organization—UNIDO. As the cooperation partner for project implementation, domestic execution organization, according to the stipulated procedure and principle for bid invitation and evaluation, is responsible for bid invitation and evaluation, signs contract with engineering contractor, participates to select qualified agent for foreign equipment purchasing. It is also responsible for supervising and managing detailed work of engineering contractor and purchasing agent, circulates a notice of technical and purchasing problems occurred during project implementation in time, reports the recommendations on problem solution to PMO and SWG, actively cooperates with SWG to accept work examination from international execution organization and related auditing organization. In order to guarantee smooth project implementation in the field of technology, under the SWG there is an expert group, which consist of a certain number of experts. In order to smoothly implement the project and pass final acceptance, the expert group is responsible for providing technical consulting service and reviewing the related documents, prepares the technical renovation outline for guiding project renovation according to the approved documents from the multi-lateral executive committee. The expert group is also responsible for providing list of qualified supplier of foreign equipment, cooperates with the project enterprise to work out the technical specification of the equipment which will be purchased from abroad and working outline for engineering service provider, participates compilation of the bids invitation documents and bids evaluation reports, reviews technical design documents submitted by the engineering service provider, checks construction, installation and commissioning of the project enterprise, executes site investigation of implementation situation for the umbrella project in each emerged enterprises, reviews the completion report of sub-items submitted by the contractor, gives comments on evaluation, and finally compiles the completion report for the whole project to submit to domestic execution organization and SWG. As the engineering corporation providing engineering design and construction service, the project

contractor holds responsible for domestic execution organization and SWG, prepares process document and final engineering drawing according to the technical renovation outline for the project compiled by the expert group, and submits those documents to the local fire fighting departments with the help of project enterprise, gets approval and construction permit issued by them, and submit the list of equipment and materials and cost budget to domestic execution organization and SWG for reviewing and recording. The contractor is also responsible for installation and commissioning of equipment purchased at home and abroad, compiles the project completion report which shall be submitted to domestic execution organization and SWG. According to the procedure of technical renovation project in China, the project enterprise has to go through formalities of project establishment and approval, submits the environment protection evaluation report, reports the related document needed by the project accurately according to the requirement, establishes project management office which consists of administration, financial and technical personnel, cooperates work inspection from the high level project management departments and domestic execution organization as well as the expert group, welcomes investigation and acceptance of international execution organization and SEPA at all times.

7 Procurement of equipment and engineering services

Taking into consideration that the technical nature and specifics of the project and contract, it was decided and agreed with UNIDO, that:

a. Services related to the project sites preparation for conversion, procurement of locally available materials, chemicals for trial tests, equipment components, transportation of imported equipment to the project sites, installation and commissioning, trial tests, training etc. will be provided by a local engineering sub-contractor. As a result of local competitive bidding, China BCEL Engineering Co. Ltd. was selected as the local engineering sub-contractor.

b. Procurement of overseas equipment and services (when required) were carried out by China Green Enterprise Ltd. assigned by the Government for these activities for majority of investment projects funded from UN and similar sources.

   Procurement modalities were based on UNIDO's financial rules and regulations and relevant Chinese legislation and regulations.

   Both bidding processes were undertaken by SEPA and China International Economic Consultants, Ltd. (CIEC) as the domestic implementing agency, assigned by the Government, in close cooperation with UNIDO in the frame of terms and conditions of the respective contract

8 Financial management of UN grants includes auditing, supervision and evaluation of cost.

According to the related stipulation of Ministry of Finance, SEPA has a very strict management system to the grants from UN multi-lateral funds. The grant for each umbrella project is managed

by the dedicated accountants, each income and payments shall be accurately recorded. The accountants strictly control every payment according to principle of special funds for special purpose and in accordance with stipulation of contract and project implementation progress. Each payment has a fixed procedure (i.e. Procurement agency submits payment application in written form to domestic execution organization. After examination, domestic execution organization submits the written comments and comments from the expert group to SEPA; According to the internal procedure of SEPA, the accountant will give the payment after signed by director in charge and FECO in charge.)- The personnel from SEPA and expert review and supervise the purchasing work.

9 Summary of work done after awarding the contract

9.1 Project management and supervision by SEPA

SEPA has established a set of effective management system. A Special Work Group (SWG) was set up within SEPA. SWG is responsible for routine work communication with UNIDO, and on behalf of SEPA, manages, supervises and coordinates the work done by domestic implementing agency, CIEC, puts forward arrangement of project implementation progress, organizes project completion acceptance etc. Domestic technical expert group supervises and checks the related technical work during project implementation, and gives expert comments to SWG and CIEC.

SEPA/CIEC selected the supplier for this project through a bidding process. According the requirement of the technical outline worked out by experts and work outline worked out by CIEC, the local engineering service provider was responsible for providing engineering service works like site layout design, delivery and transportation of imported and domestic equipment, retrofitting of production equipment where necessary, installation, trial production, and commissioning of equipment, completion acceptance and training services; holds full responsibility for correctness of design and actual implementation of the retrofitted production lines to ensure continuous, safe and correct operation of the plants and the production capacity and products quality shall be not lower than before conversion. It shall be proved in written form that production lines and auxiliary system can operate safely. The user can operate and maintain the production line safely and correctly according to the operation regulations provided by the contractor.

Beneficiary enterprises have the responsibilities and liability to cooperate with local engineering service provider according to the stipulation of SEPA/CIEC, provides necessary approval certificate for the project, provides such construction convenience as necessary plant site, electrical power, water source, etc.

Independent project expert group was responsible for laying down technical outline of the project and technical requirement on international purchased equipment. The expert group also participated in the evaluation of international and domestic bidding documents, checks design and work of the local engineering service provider, takes part in technical training for the project enterprises.

9.2 Project implementation

9.2.1 Selection of local engineering service provider

After signing contract with UNIDO, SEPA entrusted domestic implementing agency CIEC to select a local engineering service company by means of a bidding process in July of 2003.

9.2.2 Subcontracting of local engineering service provider with China BCEL Engineering Co. Ltd.

The invitation for bids for local engineering service provider was carried out by CIEC entrusted by SEPA. Short list of invitees was determined by pre-qualification. Invitations were distributed to these invitees for submission of their respective proposals. Necessary technical exchanges were carried out. All the documents were submitted according to the double envelope system stipulated by UNIDO. After specified closing date for submission, SWG took the lead to form the bids evaluation group, which consisted of domestic implementing agency and related experts. Evaluation was first carried out on technical proposal, and the following commercial evaluation was carried out only on the bidding document whose technical proposal met the requirement of the bids invitation documents. The winner was China BCEL Engineering Co. Ltd. who offered lowest bidding price and acceptable technical proposal. Bids evaluation report was submitted to UNIDO for review and approval. CIEC signed the engineering service provider contract with China BCEL Engineering Co. Ltd. (see Attachment 3)

9.2.3 Procurement of equipment by China Green Enterprises

Procurement of overseas equipment was carried out based on separate bidding documents for 2 groups of equipments. The result of the international competitive bidding was as follows:

1. CGEL028-T&R (7 sets of 6 kg/min spray foaming machine and 3 sets of 14 kg/min spray foaming machine)

Number of Invited Bidders	Number of responding Bidders	Winner	Total Price
3	3	TECMAC, s.r.l	$ 129,475

2. CGEL029-T&R (2 sets of 40 kg/min foaming machine and 1 set of 200kg/min foaming machine)

Number of Invited Bidders	Number of responding Bidders	Suggested Winner	Total Price
6	4	Cannon Croup	$170,200

The process of opening of cases with delivered equipment was officially registered in respective reports for each individual project beneficiary and The status and completeness of delivered equipment was checked against of packing list by the local engineering sub-contractor and the end users and recorded (see Attachment 1).

9.2.4 Installation, commissioning, and test run

Test runs for the new equipment as well as the retrofitted ones were carried out after their installation. Commissioning and test runs for more than 48 hours for all equipment were carried out after installation (see Attachment 2).

9.2.5 Get certificates issued by local management departments

After completion of the project certificates issued by local administration departments, which prove that the project is qualified and can be put into operation, shall be gotten.

- Acceptance certificate for fire fighting and safety

- Evaluation report on environment impact
- Qualification certificate for labor and hygiene
- Other certificates.

9.3 Consolidation among enterprises

There was no consolidation among enterprises under this project.

9.4 Cooperation with UNIDO

During the implementation of the project, SEPA and UNIDO have a very friendly and effective cooperation. The project officials from UNIDO, especially Mr. Bysyuk, spared no effort to travel many times between China and UNIDO and provide much timely and pertinent guidance to the work of SEPA/CIEC and proposed a lot of constructive comments on the specific issues during the execution of the project. Under the guidance of UNIDO and on the basis of following the principle for multi-lateral fund project operation, the execution of the project has taken into account the industrial policy of the Chinese Government and the actual situation of the project enterprises and received great support from the relevant authorities of the Chinese Government. Through the hard work of domestic implementing agency CIEC and other parties such as procurement agency and local engineering service provider and with the active participation of project enterprises, the project has been progressing smoothly in general. Thus, it ensures that the grant from multi-lateral fund will achieve more benefits in application.

9.5 Experience gained from the execution of the project

One experience we obtained is the setup of a domestic experts group. The domestic group consists of engineers who have rich experience in multilateral funds grants and special theoretical knowledge. The domestic group has been taken good role in writing design plan, evaluation of equipment purchasing, accepting of engineering time schedule and controlling of construction quality.

10 Payments management between SEPA, Special Work Group, domestic executive organization and engineering contractor

Under the leadership of SEPA, SWG and domestic implementing agency effectively supervised and controlled the whole progress of contracting project. This supervision is not only the control for technology and construction program, but also for the finance. Every item of payment should be paid strictly according to the contract. After the engineering quantity has reached to required quantity specified in the contract, the payment shall be done proportionally in the bank assigned by contractor. Every payment should be controlled each other. First of all, the contractor should apply for payment in written form to domestic implementing agency, during the stage of the written form was checked and approved, it should be also accepted by project expert and project enterprise. After approval by relevant parties, SWG will report again to PMO of SEPA. After getting the payment application, the PMO transfers it to the Project Financial Department for checking the amount of money. The accountant will pay payable balance to total engineering contractor after checking.

11 Summary of conversion phase at the premises of the project enterprises

As mentioned hereinabove, China BCEL Engineering Co. Ltd. was selected through a bidding procedure as the local engineering service provider and the contract was awarded to the contractor. According to the contract, the contractor is responsible for the most part of the work in the conversion phase.

In consideration of the geographic spread of the enterprises under this project, the contractor carried out its task with a group approach in order to use the project fund in the most efficient way. The enterprises were grouped based on their geographic locations to facilitate the transportation of equipment and the field of the contractor's technical staff. Two groups were established for this purpose. The first group is for enterprises located in provinces of Hubei, Henan, Jiangsu and Zhejiang. The Second group is for enterprises located in Beijing and Liaoning province.

During this phase of project implementation, UNIDO mission visited Beijing and discussed with SEPA on the overall project implementation progress and specific issues regarding activities of this conversion phase. With UNIDO's timely guidance and assistance, the project execution was in smooth progress. By mid March 2004, most of the tasks for this phase including transportation and installation of new equipment, commissioning of the production lines, and training for the technical staff of the enterprises had been completed.

11.1 Technical inspection of the project sites of the group to ensure their readiness to receive and install the new equipment

In order to ensure the readiness of the project sites to receive and install the new equipment, the engineering contractor sent its technical personnel together with domestic technical experts in 2 different groups to the project sites at 7 enterprises and undertook inspection. Since there had been discussions between the contractor and the enterprises on the preparation of project sites including layout for the imported and the retrofitted equipment and other pre-installation requirement such as the supply of power and water and necessary technical assistances had been provided by the contractor's staff, nearly all project sites were technically ready for receiving and installing new equipment by the time of technical inspection. Some minor problems existed at several project sites were discovered by the contractor's staff and improvement advices were provided to the enterprises concerned. Improvement was made accordingly.

Realizing that the production safety is a very important issue for the conversed production, it was another aspect on which the inspection focused.

11.2 Delivery and insurance inspection of goods at the project sites

Transportation companies were sub-contracted by the contractor for the delivery of equipment for the 2 different groups of enterprises. Comparison of prices was made in the selecting process of transportation companies. The service records of the transportation companies were also reviewed to ensure that good services would be provided for the project.

The sub-contractors delivered the goods properly to the respective project sites according to the requirement of their sub-contracts. Inspections of goods at each project site were conducted after the goods arrived. Representatives from the engineering contractor, equipment suppliers, project enterprises, international procurement agency, and transportation companies presented during the inspection process. After the inspections of the equipment, the parties signed the Record of Open Case Inspection of Equipment.

11.3 Installation, and inspection of the converted lines prior to the commissioning and trial tests

With the presence and necessary assistance of representatives from equipment suppliers, the installation of equipment was done by the engineering contractor. After the installation was completed, the inspection of the new equipments followed to ensure their readiness to undertake commissioning and trial tests. The electronic control systems, compressed air, circulated water; spare parts as well as the whole sets of machine were inspected respectively. According to the contract, the engineering contractor should provide sufficient chemicals for each machine for the testing run. The chemicals had been delivered to the enterprises by the time of equipment's arrival. Inspections also done on these chemicals and other materials as well as other works required by enterprises. After the inspection of machines at a specific enterprise finished, the engineering contractor immediately contacted the equipment supplier for trial tests for the enterprise.

11.4 Trial production tests in accordance with the agreed programme

There were two steps for the trial production tests. The first step was to run the machines with solvent (DOP) instead of PU chemicals. Affirming the success of the test in the first step, the second step of trial production tests followed which used PU chemicals as the trial materials. The trial production test would continue until the machine produced quality products in a constant and stable manner. In the trial production tests, the representatives from equipment suppliers demonstrated first to the workers of the enterprises the operation of the machines; then the workers operated the machines under the guidance and with the assistance of the supplier representatives; finally, the workers operated the machines independently.

Results of the trial were reflected in the relevant commissioning and trial reports signed by the sub-contractor and the end users.

11.5 On the job training and examination (including issuance of individual certificates) of technical staff

In order to enable the technical staff of enterprises to learn in detail the new equipment including the operation and maintenance of the equipment so as to ensure the production of the converted equipments, a training course was organized in Nanjing, Jiangsu province on March 5-6, 2004. Participants were technical personnel from 7 enterprises under the project. The representatives from the equipment suppliers gave detailed training, both theoretical, and operational, on the equipment and safety-related issues. At the end of the training course, the participants took an examination at the end of the training course. Certificates were issued to those participants who passed the examination.

11.6 Role of the website established under the first PU project

The existence of the website established under the first PU project was informed to the enterprises under this project. The project enterprises were encouraged to take advantage of the website in their phaseout process. The website plays a positive role in publicizing the enterprises, their products, and most importantly the ODS phase-out projects.

12. National requirement for acceptance of the project

According to the related national regulations, projects involving new equipment installation should go through a process of acceptance before the new equipment can be put into production. The fire fighting and hygiene, labor-related issues, and environment-related issues need to be inspected and reviewed by the respective local government agencies. If these issues are found to be

not in line with the national or local respective requirements, the enterprise concerned will be asked to make adjustment or changes until these requirements are completely met. Then, certificates will be issued to the enterprise by the respective agencies.

The review and inspections at enterprises under this project is being undertaken. However, since the HCFC-141b and water, the substituting blowing agents for CFC-11 used in this project, are incombustible, certificates of fire fighting from local government will not be included as an attachment in this final report. Because there is no requirement in UNIDO's project implementation procedure for certificates of hygiene, labor issue, and environmental issue from local government, such certificates will not be included in this progress report either.

13. Technology transfer issues

For converting technology, six of the enterprises under this project selected HCFC-141b technology, one enterprise selected water blowing technology as the substitute technology for CFC-11 system in their production. The pre-mixed polyol of converted PU system are purchased from the local system house. Since the chemical systems are new for most of the enterprises and had never been used in their production before the conversion, the technology transfer stood out as a very important issue.

Among other things, the cost of foam products produced with this new chemical is more concerned by the enterprises. The costs for producing different kinds of foam product can vary a lot for production before the conversion and after. Generally the costs of PU system using substitute technology are higher than that of CFC-11 system for manufacturing foam products in same performance. In consideration of the lower foam product output using conversion system, for example spray foam, the cost difference will be much higher. It is very important to supply the enterprises high quality chemicals in reasonable price and good technical service for their competition in the market.

In consideration of the above-mentioned factor, as well as in order to ensure the enterprises to produce good quality products with the new system, the scope of work for the local engineering service provider includes providing technology transfer service to the enterprises. According to the contract, the contractor provides field services to the enterprises six times for each enterprise, that is, one time per month for the first three months, and one time per three months for the remaining months. In case that emergent problems arise, the company provides extra services upon demands from the enterprises.

14. Modality of destroying CFC equipment

According to the project, all replaced equipment using CFC-11 as blowing agent must be destroyed after the conversion is completed. The actual modality of destroying CFC equipment are in process of two options. The first option is that SEPA's technical experts are visiting the sites where the equipments are destroyed. Photographs are being taken (or/and video recordings) for the destroying process. The other option is that the officials of local environmental protection authorities or local notarization personnel are visiting the sites where the equipments are destroyed. Photographs are also taken (or/and video recordings) for the destroying process.

After witnessing the whole destroying process, the SEPA's technical experts, in the case of the first option, will sign testifying documents for the enterprises as certificates of destroying CFC-consuming equipment. In the case of the second option, local environmental protection authorities or local notarization offices will provide those documents. A description of the destroying process and all certificates will be included in the draft project completion report,

which will be finalized by UNIDO.

15. Official transfer of ownership of equipment from government to enterprises

According to the related rules and regulations, the titles of ownership of equipment purchased for the enterprises under this project will be officially transferred from the government to the enterprises after the successful completion of the project. Description of the transfer process will also be included in the project completion report.

16. Organization of a study tour to Europe

Since the PU foam products for transportation subsector are often used in the circumstances of frequent jounce and strike, and in various climate conditions, the requirement for its physical performance such as mechanical strength, adhesion, anti-aging, and insulation are higher compared with ordinary rigid foam products. The technical support of mature and advanced substituting technology is one of the most important factors for the smooth production after the conversion.

In consideration of the above, an overseas study tour to Europe on transportation foam substituting technology was organized to study the latest technological development and its trend. The delegation visited foam equipment manufacturers, chemical raw material companies, foam producers in transportation sector. Views were exchanged between the delegation and the enterprises visited on the technological status quo, raw materials, equipment, and production processes of insulation foam and integral skin foam for transportation refrigeration sector. It turned out that the tour was not only beneficial to the umbrella project under implementation, but also to the projects that have been completed as well as those that will be implemented in the future.

17. Organization of a technical seminar for establishing product standards

The HCFC-141b technology is the most adopted technology in the production of insulation rigid foam for the refrigeration vehicles (including insulation vehicles) after conversion. Other technologies such as water were also used by some enterprises. However, problems were encountered by enterprises in terms of the quality of the products produced with substitute technologies. There are various reasons for this. The absence of product standards for the whole sector stands out as one of the most important reasons. In order for the enterprises to better use the substitute technology and ensure the quality of their products, it is necessary to establish new product standards or revise the existing ones. SEPA proposed a technical seminar on the establishment of standards for products produced with substitute technologies aiming to collect opinions and recommendations from enterprises, industrial associations, research institutes, and experts, which can serve as preparation for the actual standard establishment/revision. The seminar can also serve as a training course in which enterprises can learn more about the substitute technology through discussion. UNIDO reviewed the proposal and approved it.

The seminar was held on 11-14 July, 2004. The participants included technical experts from related research institutes, large automobile manufacturers, quality control and monitoring centres, automobile industrial association, transportation project enterprises, as well as project management personnel from SEPA.

Theoretical training was conducted by experts on PU rigid foam technology, technical

requirements for foam products used in vehicles and the testing methods. The experts also briefed the seminar a report on the analysis of related PU insulation foam product standards for transportation sector adopted both in China and abroad. The training included foam production formulations and their evolution, problems faced by enterprises, and the importance of establishing product standards. There was a good discussion after the introductions among the participants and comments and suggestions were voiced and some were recorded in the seminar's memo.

A plan for the next step's work on actual drafting the standards was also discussed and adopted at the seminar.

Attachment 1: Conversion Equipment of 7 Enterprises

Enterprise	Description	Model	Specification	Unit	Manufacturer	Note
Hongyu	HP Foam Dispenser	A-COMPACT200FC	200 kg/min	1	Cannon	New
	Daylight Press		6 × 1.5m (4 layers) 13 × 3m	2	*	Retrofit
Tianyun	Spray Foam Machine	ISOLTEC IT/14	14 kg/min	1	TECMAC	New
	Foam Dispenser	A-COMPACT40FC	40 kg/min	1	Cannon	New
Songliao	Spray Foam Machine	ISOLTEC IT/6P-VR	6 kg/min	1	TECMAC	New
		ISOLTEC IT/14	14 kg/min	1	TECMAC	New
Xinyang	Spray Foam Machine	ISOLTEC IT/6P-VR	6 kg/min	1	TECMAC	New
Longan	Spray Foam Machine	ISOLTEC IT/6P-VR	6 kg/min	3	TECMAC	New
Yizheng	Spray Foam Machine	ISOLTEC IT/6P-VR	6 kg/min	2	TECMAC	New
		ISOLTEC IT/14	14kg/min	1	TECMAC	New
Yinxian	Foam Dispenser	A-COMPACT40FC	40 kg/min	1	Cannon	New
	In Mould Coating Machine	Self-made		1	*	Retrofit

* The retrofitting was conducted by BCEL, the local engineering service provider, within the framework of engineering contract.

Attachment 1-2

河南红宇机械厂 CFC-11 替代项目
设备开箱检验记录表

Open Case Record for Hongyu

编码：

合同号	CGEL—029-T&K	位　　号	
批　号	280198	设备名称	A COMPACT 200
箱　号		开箱日期	2004、2、17

设备包装检查：木箱包装，内套塑料袋，包装完整	随箱文件			
设备外观检查：外观整洁	名称	份数	页数	接存单位

序号	系列号	设备名称及规格（含专用工具及备品件）	单位	数量		接存单位	随箱文件 名称	份数	页数	接存单位
				应到数	实到数					
1		A COMPACT 200	台	1	1	河南红宇	说明书	3	光盘	河南红宇
2		冷水机组	套	1	1	河南红宇	电器图	1		河南红宇
3		备件	套	1	1	河南红宇	流程图	1		河南红宇
4		专用工具	套	1	1	河南红宇				
							检验意见			
							以上情况属实			

业主（用户）代表：

安装方代表：

工程公司代表：

商检代表：

宁波鄞州汽车内饰件厂 CFC-11 替代项目

设备开箱检验记录表

编码 Open Case Record Yinxian

合同号	CGEL029-T&K	位号	
批号	271579	设备名称	A COMPACT 40FC
箱号		开箱日期	2004，2．26

设备包装检查：包装完整，木箱外观良好。

设备外观检查：设备外观完整无缺。

序号	设备名称及规格（含专用工具及备品件）	单位	数量		接存单位
			应到数	实到数	
1	高压机 A COMPACT 40FC	台	1	1	宁波鄞州
2	冷水机	台	1	1	宁波鄞州
3	专用工具	包	1	1	宁波鄞州
4	易损备件	包	1	1	宁波鄞州
5					
6					
7					
18					

随箱文件

名称	份数	页码	接存单位
说明书	3	光盘	宁波鄞州
电器图	1		宁波鄞州
流程图	1		宁波鄞州
压力容器证书	3		宁波鄞州

检验意见

以上情况属实

受益企业代表：

程服务公司代表：

安装方代表：2004.02.26

商检代表：

工

北京天云汽车改装厂 CFC-11 替代项目
设备开箱检验记录表

编码：Open Case Record for Tianyun

合同号	CGEL－029-T&K	位　　号	
批　　号	271578	设备名称	A COMPACT 40FC
箱　　号		开箱日期	2004、2、11

设备包装检查：木箱包装，内套塑料袋，包装完整

设备外观检查：外观整洁

序号	系列号	设备名称及规格（含专用工具及备品件）	单位	数量		接存单位
				应到数	实到数	
1		A COMPACT 40FC	台	1	1	北京天云
2		冷水机组	套	1	1	北京天云
3		备件	套	1	1	北京天云
4		专用工具	套	1	1	北京天云

随箱文件

名称	份数	页数	接存单位
说明书	3	光盘	北京天云
电器图	1		北京天云
流程图	1		北京天云

检验意见

以上情况属实

业主（用户）代表：

安装方代表：

工程公司代表：

商检代表：

北京天云汽车改装厂 CFC-11 替代项目

设备开箱检验记录表

编码：Open Case Record for Tianyun (2)

合同号	CGEL—028—TSTK	位　　号	
批　号	1216	设备名称	ISOLTECIT/14
箱　号		开箱日期	2003、10、16

设备包装检查：良好

设备外观检查：良好

序号	系列号	设备名称及规格（含专用工具及备品备件）	单位	数量		接存单位
				应到数	实到数	
1		ISOLTECIT/14	台	1	1	北京天云
2		备用管 40m	套	1	1	北京天云
3		工具包	套	1	1	北京天云
4		电热棒	个	2	2	北京天云
5		保险器、灯泡	包	1	1	北京天云
6		料泵轴封	套	2	2	北京天云
7		浇注延长喷嘴	个	1	1	北京天云
8		枪头喷嘴	个	1	1	北京天云
9		过滤器	个	2	2	北京天云
10		密封件等	包	1	1	北京天云

随箱文件

名称	份数	页数	接存单位
说明书	2		北京天云

检验意见

以上情况属实

业主（用户）代表：

安装方代表：

工程公司代表：

商检代表：

武汉龙安集团有限责任公司 CFC-11 替代项目
设备开箱检验记录表

编码：Open Case Record for Longan

合同号	CGEL－028－TSCK	位　　号	
批　号	1218,1219,1220	设备名称	ISOLTECIT/6P-VR
箱　号		开箱日期	2003、10、22

设备包装检查：良好

设备外观检查：良好

序号	系列号	设备名称及规格（含专用工具及备品件）	单位	数量		接存单位
				应到数	实到数	
1		ISOLTECIT/6P-VR	台	3	3	武汉龙安
3		备用管 40m	套	3	3	武汉龙安
4		工具包	套	3	3	武汉龙安
5		电热棒	个	6	6	武汉龙安
6		保险器、灯泡等	包	3	3	武汉龙安
7		料泵轴封	套	6	6	武汉龙安
8		浇注延长喷嘴	个	3	3	武汉龙安
9		枪头喷嘴	个	3	3	武汉龙安
10		过滤器	个	6	6	武汉龙安
11		密封件等	包	3	3	武汉龙安

随箱文件

名称	份数	页数	接存单位
说明书	6		武汉龙安

检验意见

以上情况属实

业主（用户）代表：

安装方代表：

工程公司代表：

商检代表：

江苏仪征节能环保设备厂 CFC-11 替代项目
设备开箱检验记录表

编码：Open Case Record for Yizheng

合同号	CGEL－028－T&I检－	位　　号	
批　号		设备名称	ISOLTECIT/6P-VR ,ISOLTECIT/14
箱　号		开箱日期	2003、10、13

设备包装检查：良好	随箱文件			
设备外观检查：良好	名称	份数	页数	接存单位
	说明书	6		江苏仪征

序号	系列号	设备名称及规格（含专用工具及备品件）	单位	数量		接存单位
				应到数	实到数	
1		ISOLTECIT/14	台	1	1	江苏仪征
2		ISOLTECIT/6P-VR	台	2	2	江苏仪征
3		备用管 40m	套	3	3	江苏仪征
4		工具包	套	3	3	江苏仪征
5		电热棒	个	6	6	江苏仪征
6		保险器、灯泡	包	3	3	江苏仪征
7		料泵轴封	套	6	6	江苏仪征
8		浇注延长喷嘴	个	3	3	江苏仪征
9		枪头喷嘴	个	3	3	江苏仪征
10		过滤器	个	6	6	江苏仪征
11		密封件等	包	3	3	江苏仪征

检验意见
以上情况属实

业主（用户）代表：

工程公司代表：

安装方代表：

商检代表：

沈阳新阳汽车改装厂 CFC-11 替代项目
设备开箱检验记录表

编码：Open Case Record for Xinyang

合同号	CGEL－028－TSK	位　　号	
批　　号	1222	设备名称	ISOLTECIT/6P-VR
箱　　号		开箱日期	2003、10、20
设备包装检查：良好		随箱文件	
设备外观检查：良好		名称 / 份数 / 页数 / 接存单位	

序号	系列号	设备名称及规格（含专用工具及备品件）	单位	数量		接存单位	随箱文件 名称	份数	页数	接存单位
				应到数	实到数		说明书	2		沈阳新阳
1		ISOLTECIT/6P-VR	台	1	1	沈阳新阳				
2		备用管 40m	套	1	1	沈阳新阳				
3		工具包	套	1	1	沈阳新阳				
4		电热棒	个	2	2	沈阳新阳				
5		保险器、灯泡	包	1	1	沈阳新阳				
6		料泵轴封	套	2	2	沈阳新阳	检验意见			
7		浇注延长喷嘴	个	1	1	沈阳新阳	以上情况属实			
8		枪头喷嘴	个	1	1	沈阳新阳				
9		过滤器	个	2	2	沈阳新阳				
10		密封件等	包	1	1	沈阳新阳				

业主（用户）代表：王桂彦　　安装方代表：

工程公司代表：　　商检代表：

沈阳天鹰专用汽车制造有限公司 CFC-11 替代项目
设备开箱检验记录表

编码：Open Case Record for SongLiao

合同号	CGEL－028－TSK.	位　　号	
批　号	1221，1215	设备名称	ISOLTEC IT/6P-VR ,ISOLTECIT/14
箱　号		开箱日期	2003、10、18

设备包装检查：良好

设备外观检查：良好

随箱文件

名称	份数	页数	接存单位
说明书	4		沈阳天鹰

序号	系列号	设备名称及规格（含专用工具及备品件）	单位	数量		接存单位
				应到数	实到数	
1		ISOLTECIT/14	台	1	1	沈阳天鹰
2		ISOLTEC IT/6P-VR	台	1	1	沈阳天鹰
3		备用管 40m	套	2	2	沈阳天鹰
4		工具包	套	2	2	沈阳天鹰
5		电热棒	个	4	4	沈阳天鹰
6		保险器、灯泡	包	2	2	沈阳天鹰
7		料泵轴封	套	4	4	沈阳天鹰
8		浇注延长喷嘴	个	2	2	沈阳天鹰
9		枪头喷嘴	个	2	2	沈阳天鹰
10		过滤器	个	4	4	沈阳天鹰
11		密封件等	包	2	2	沈阳天鹰

检验意见

以上情况属实

业主（用户）代表：

安装方代表：

工程公司代表：

商检代表：

ACCEPTANCE CERTIFICATE

Date: Oct. 20, 2003

Project No: UNIDO MP/CPR/01/167
Contract No. CGEL-028-T&R

Contract for procurement of 10 sets of spray foaming machines between China Green enterprise limited and TEC MAC Srl Phaseout of CFC-11 with HCFC-141B at six companies and phaseout of CFC-11 by conversion to water blown technology at one company(umbrella project) in the transportation-refrigeration sector of China.

With reference to the contract signed in March 2003 under the project between China Green enterprise limited and TEC MAC Srl for Shenyang Xinyang Vehicle Refit Factory,ect.

We wish to confirm the goods in contract for Shenyang Xinyang Vehicle Refit Factory have been tested and commissioned satisfactorily and the operators have been trained well.

We therefore confirm the acceptance of the relative plant.

For Shenyang Xinyang Vehicle Refit Factory
Mr. Wang De Yong

For and on behalf Tec Mac Srl
Mr. Zheng Zuo Chao
Zheng Zuo Chao

ACCEPTANCE CERTIFICATE

Date: Oct. 13, 2003

Project No: UNIDO MP/CPR/01/167
Contract No. CGEL-028-T&R

Contract for procurement of 10 sets of spray foaming machines between China Green enterprise limited and TEC MAC Srl Phaseout of CFC-11 with HCFC-141B at six companies and phaseout of CFC-11 by conversion to water blown technology at one company(umbrella project) in the transportation-refrigeration sector of China.

With reference to the contract signed in March 2003 under the project between China Green enterprise limited and TEC MAC Srl for Jiangsu Yizheng Environmental Protection Equipment Factory,ect.

We wish to confirm the goods in contract for Jiangsu Yizheng Environmental Protection Equipment Factory have been tested and commissioned satisfactorily and the operators have been trained well.

We therefore confirm the acceptance of the relative plant.

For Jiangsu Yizheng Environmental Protection Equipment Factory

Mr. Yao Yong

For and on behalf Tec Mac Srl

Mr. Zheng Zuo Chao

Zheng Zuo Chao

ACCEPTANCE CERTIFICATE

Date: Oct. 17, 2003

Project No: UNIDO MP/CPR/01/167
Contract No. CGEL-028-T&R

Contract for procurement of 10 sets of spray foaming machines between China Green enterprise limited and TEC MAC Srl
Phaseout of CFC-11 with HCFC-141B at six companies and phaseout of CFC-11 by conversion to water blown technology at one company(umbrella project) in the transportation-refrigeration sector of China.

With reference to the contract signed in March 2003 under the project between China Green enterprise limited and TEC MAC Srl for Beijing Tianyun Auto Modification Plant ect.

We wish to confirm the goods in contract for Beijing Tianyun Auto Modification Plant have been tested and commissioned satisfactorily and the operators have been trained well.

We therefore confirm the acceptance of the relative plant.

For Beijing Tianyun Auto Modification Plant

Mr. Yang Shi Feng

For and on behalf Tec Mac Srl

Mr. Zheng Zuo Chao

Zheng Zuo Chao

ACCEPTANCE CERTIFICATE

Date: Oct. 19, 2003

Project No: UNIDO MP/CPR/01/167
Contract No. CGEL-028-T&R

Contract for procurement of 10 sets of spray foaming machines between China Green enterprise limited and TEC MAC Srl Phaseout of CFC-11 with HCFC-141B at six companies and phaseout of CFC-11 by conversion to water blown technology at one company(umbrella project) in the transportation-refrigeration sector of China.

With reference to the contract signed in March 2003 under the project between China Green enterprise limited and TEC MAC Srl forShenyang Tianying Automobile Manufactory,ect.

We wish to confirm the goods in contract for Shenyang Tianying Automobile Manufactory have been tested and commissioned satisfactorily and the operators have been trained well.

We therefore confirm the acceptance of the relative plant.

For Shenyang Tianying Automobile Manufactory

Mr. Li Bing

For and on behalf Tec Mac Srl

Mr. Zheng Zuo Chao

Zheng Zuo Chao

ACCEPTANCE CERTIFICATE

Date: Oct. 22, 2003

Project No: UNIDO MP/CPR/01/167
Contract No. CGEL-028-T&R

Contract for procurement of 10 sets of spray foaming machines between China Green enterprise limited and TEC MAC Srl Phaseout of CFC-11 with HCFC-141B at six companies and phaseout of CFC-11 by conversion to water blown technology at one company(umbrella project) in the transportation-refrigeration sector of China.

With reference to the contract signed in March 2003 under the project between China Green enterprise limited and TEC MAC Srl for Wuhan Longan Group Co.Ltd ,ect.

We wish to confirm the goods in contract for Wuhan Longan Group Co.Ltd have been tested and commissioned satisfactorily and the operators have been trained well.

We therefore confirm the acceptance of the relative plant.

For Wuhan Longan Group Co.Ltd

Mrs.Xue Ying

For and on behalf Tec Mac Srl

Mr. Zheng Zuo Chao

Zheng Zuo Chao

Cannon Far East Pte Ltd
2 Woodlands Sector 1, #03-08,
Woodlands Spectrum,
Singapore 738068

Cannon Far East

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Fax +65-6753-2677
technical@cannonfareast.com
www.cannon.com

COMMISSIONING & MACHINERY ACCEPTANCE
安装调试及设备验收

Start-up carried out on 安装调试开始	2004-02-17—02-20	By 测试执行者：	刘永平
Customer / 客户：	河南红宇机械厂 Hongyu		
Address 地址：	河南省郑州市中牟县建设南路 32 号		
At the presence of 客户负责人：	侯永华		
Contract N. 合同号：	CGEL-029-T&K		
Order Confirmation N. 定购确认书：			
Serial N. / 编号：	A COMPACT200/280198		

Under today's date, the commissioning of the a.m. machinery has been completed. The machinery has been found in compliance with the above-mentioned contract and the functioning level has been accepted.	附合合同要求，同意验收。
AGENT SIGNATURE / 康隆远东公司代表签名 刘永平	CUSTOMER SIGNATURE / 客户代表签名

Cannon Far East Pte Ltd
2 Woodlands Sector 1, #03-08,
Woodlands Spectrum,
Singapore 738168

Cannon Far East

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www.cannon.com

COMMISSIONING & MACHINERY ACCEPTANCE
安装调试及设备验收

Start-up carried out on
安装调试开始:
2004/02/26

By
测试执行者:
孙宏

Customer / 客户:
宁波鄞州沙发内饰件厂

Address
地址:
宁波市鄞州区姜山芝江工业区 Yinxian

At the presence of
客户负责人:
陈荣芳

Contract N.
合同号:
CGEL029-T&R

Order Confirmation N.
定购确认号:

Serial N. / 编号:
271579

Under today's date, the commissioning of the a.m. machinery has been completed. The machinery has been found in compliance with the above-mentioned contract and the functioning level has been accepted.	该设备符合合同要求，同意验收。
AGENT SIGNATURE / 康隆远东公司代表签名 孙宏 2004/02/29	CUSTOMER SIGNATURE / 客户代表签名 陈荣芳 2004.2.29

Cannon Far East Pte Ltd
2 Woodlands Sector 1, #03-08,
Woodlands Spectrum,
Singapore 738068

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technical@cannonfarcast.com
www.cannon.com

COMMISSIONING & MACHINERY ACCEPTANCE
安装调试及设备验收

Start-up carried out on 安装调试开始	2004-02-09—02-12	By 测试执行者：	刘永平
Customer / 客户：	北京天云汽车改装厂 Tianyun		
Address 地址：	北京市房山区良由多宝路 42 号		
At the presence of 客户负责人	杨世峰		
Contract N. 合同号：	CGEL-029-T&K		
Order Confirmation N. 定购确认号			
Serial N. / 编号：	A COMPACT40FC/271578		

Under today's date, the commissioning of the a.m. machinery has been completed. The machinery has been found in compliance with the above-mentioned contract and the functioning level has been accepted.	附合合同要求，同意验收。
AGENT SIGNATURE / 康隆远东公司代表签名 刘永平	CUSTOMER SIGNATURE / 客户代表签名

Retrofitting Acceptance of Yinxian

宁波鄞州汽车内饰件厂设备改造验收报告

汽车泡沫 CFC-11 替代伞形项目，宁波鄞州汽车内饰件厂设备改造已经全部完成，质量合格，符合设备改造合同的要求（合同编号：CIEC2003－009－04）。运转正常，经双方认可，同意验收。

受益企业代表：

2004.2.26

工程服务方代表

2004.2.26

Retrofitting Acceptance of Hongyu

河南红宇机械厂设备改造验收报告

汽车泡沫 CFC-11 替代伞形项目，河南红宇机械厂设备改造已经全部完成，质量合格，符合设备改造合同的要求（合同编号：CIEC2003－009－03）。运转正常，经双方认可，同意验收。

受益企业代表：

工程服务方代表：

Commissioning and Trial Production Report

Equipment Name: HP foaming machine
Equipment Model:
Equipment Serial Number:
Manufacturer:

After the equipment was installed, an overall inspection was conducted to make sure that compressed air, heating/cooling water, and electricity power were all properly supplied. Then the commissioning was done with DOP. After the machine normally ran and such parameters as pressure, temperature, electric current were stable at their respective desired position, the commissioning process finished. The elementary training of machine operation was also undertaken during the commissioning process.

Trial production followed the commissioning.

The procedure for the trial production is as below:

1. Drain all DOP in the chemical tanks and pour chemicals into the two tanks. The flow of chemicals further ejects the remaining DOP in the supplying pipes.
2. Fill the tanks with chemicals until they reach the required volume. This can also lower the density of the DOP.
3. Start the machine and eject the air in the chemicals.
4. Check if the low-pressure meter of the machine works normally. Also check that both over-pressure protection devices of the high-pressure meter and the emergency button work normally.
5. Test the machine on the batch basis after the chemicals reach the required temperature.
6. Test the function of high-pressure pump and make the corresponding graphs.
7. Test the machine with free foaming and check the density of the foam produced. After the free foaming process meets the requirement, make sample products.
8. Conduct training for production operation.
9. Conduct the trial production when the sample products meet the requirement. The workers operate the machine in the trial production process under the guidance of the equipment supplier representatives.
10. Conduct further on-spot training and give examination.

Through the commissioning and the trial production, the two sides agreed that the machines ran normally and stably. The machines were accepted by the enterprise upon the completion of the commissioning and trial production.

Commissioning Report for Yizheng

江苏仪征节能环保设备厂 CFC—11 替代项目

设备调试、投料试车报告

设备名称：喷涂机

设备型号：ISOLTEC IT/14

设备系列号：

生产厂家：意大利 TEC MAC

报告内容

联接设备相关管路，加入液压油，供电，接压缩空气，油输出调节器置零，油压调节器置零。主开关送电，开液压站马达，检查电机转向是否正常，调正常后，投料试车。

1、排清循环管路的 DOP，等待原料由循环管路流出并且无气泡即可。

2、调液压缸工作频率 10 次/分钟。

3、排清枪头管路的 DOP。

4、检查压力表工作是否正常，急停按钮工作是否正常。

5、将各点温控仪设定好。

6、等待温度达到理想温度后，开枪喷涂。

7、看雾化情况，调节油压输出压力以达到理想雾化效果，试做产品。

8、产品操作培训。

9、在产品经企业验收合格后试生产，试生产操作在供方的指导下由企业工人进行。

10、现场培训考试。

双方认为经过设备调试、投料试车过程，设备可以稳定运转。设备调试、投料试车合格。

项目企业代表签字

供货商代表签字

工程服务公司代表签字

报告日期 2003、10、13

Commissioning Report for Yizheng

江苏仪征节能环保设备厂 CFC—11 替代项目

设备调试、投料试车报告

设备名称：喷涂机

设备型号：ISOLTEC IT/6P-VR、

设备系列号：1221，

生产厂家：意大利 TEC MAC

报告内容

联接设备相关管路，检查供电，供气是否正常，正常后，将一级送料泵加入相关料罐中，开始试车。

1、排清循环管路的 DOP，等待原料由循环管路流出并且无气泡即可。

2、调气缸。

3、排清枪头管路的 DOP。

4、检查压力表工作是否正常，急停按钮工作是否正常。

5、将各点温控仪设定好。

6、等待温度达到理想温度后，开枪喷涂。

7、产品操作培训。

8、在产品经企业验收合格后试生产，试生产操作在供方的指导下由企业工人进行。

9、现场培训考试。

双方认为经过设备调试、投料试车过程，设备可以稳定运转。设备调试、投料试车合格。

项目企业代表签字

供货商代表签字

工程服务公司代表签字

报告日期 2003、10、13

Commissioning Report for Tianyun

北京天云汽车改装厂 CFC—11 替代项目

设备调试、投料试车报告

设备名称：喷涂机

设备型号：ISOLTEC IT/14

设备系列号：1216

生产厂家：意大利 TEC MAC

报告内容

联接设备相关管路，加入液压油，供电，接压缩空气，油输出调节器置零，油压调节器置零。主开关送电，开液压站马达，检查电机转向是否正常，调正常后，投料试车。

1、排清循环管路的 DOP，等待原料由循环管路流出并且无气泡即可。

2、调液压缸工作频率 10 次/分钟。

3、排清枪头管路的 DOP。

4、检查压力表工作是否正常，急停按钮工作是否正常。

5、将各点温控仪设定好。

6、等待温度达到理想温度后，开枪喷涂。

7、看雾化情况，调节油压输出压力以达到理想雾化效果，试做产品。

8、产品操作培训。

9、在产品经企业验收合格后试生产，试生产操作在供方的指导下由企业工人进行。

10、现场培训考试。

双方认为经过设备调试、投料试车过程，设备可以稳定运转。设备调试、投料试车合格。

项目企业代表签字

供货商代表签字

工程服务公司代表签字

报告日期 2003、10、17

Commissioning Report for Songliao

沈阳天鹰专用汽车制造有限公司 CFC—11 替代项目

设备调试、投料试车报告

设备名称：喷涂机

设备型号：ISOLTEC.IT/6P-VR、

设备系列号：1221，

生产厂家：意大利 TEC MAC

报告内容

联接设备相关管路，检查供电，供气是否正常，正常后，将一级送料泵加入相关料罐中，开始试车。

1、排清循环管路的 DOP，等待原料由循环管路流出并且无气泡即可。

2、调气缸。

3、排清枪头管路的 DOP。

4、检查压力表工作是否正常，急停按钮工作是否正常。

5、将各点温控仪设定好。

6、等待温度达到理想温度后，开枪喷涂。

7、产品操作培训。

8、在产品经企业验收合格后试生产，试生产操作在供方的指导下由企业工人进行。

9、现场培训考试。

双方认为经过设备调试、投料试车过程，设备可以稳定运转。设备调试、投料试车合格。

项目企业代表签字 [signature]

供货商代表签字 [signature]

工程服务公司代表签字 [signature]

报告日期 2003、10、19

Commissioning Report for Songliao

沈阳天鹰专用汽车制造有限公司 CFC—11 替代项目

设备调试、投料试车报告

设备名称：喷涂机

设备型号：SOLTECIT/14

设备系列号：1215

生产厂家：意大利 TEC MAC

报告内容

联接设备相关管路，加入液压油，供电，接压缩空气，油输出调节器置零，油压调节器置零。主开关送电，开液压站马达，检查电机转向是否正常，调正常后，投料试车。

1、排清循环管路的 DOP，等待原料由循环管路流出并且无气泡即可。

2、调液压缸工作频率 10 次/分钟。

3、排清枪头管路的 DOP。

4、检查压力表工作是否正常，急停按钮工作是否正常。

5、将各点温控仪设定好。

6、等待温度达到理想温度后，开枪喷涂。

7、看雾化情况，调节油压输出压力以达到理想雾化效果，试做产品。

8、产品操作培训。

9、在产品经企业验收合格后试生产，试生产操作在供方的指导下由企业工人进行。

10、现场培训考试。

双方认为经过设备调试、投料试车过程，设备可以稳定运转。设备调试、投料试车合格。

项目企业代表签字

供货商代表签字

工程服务公司代表签字

报告日期 2003、10、19

Commissioning Report for Xinyang

沈阳新阳汽车改装厂 CFC—11 替代项目

设备调试、投料试车报告

设备名称：喷涂机

设备型号：ISOLTEC IT/6P-VR、

设备系列号：1222，

生产厂家：意大利 TEC MAC

报告内容

联接设备相关管路，检查供电，供气是否正常，正常后，将一级送料泵加入相关料罐中，开始试车。

1、排清循环管路的 DOP，等待原料由循环管路流出并且无气泡即可。

2、调气缸。

3、排清枪头管路的 DOP。

4、检查压力表工作是否正常，急停按钮工作是否正常。

5、将各点温控仪设定好。

6、等待温度达到理想温度后，开枪喷涂。

7、产品操作培训。

8、在产品经企业验收合格后试生产，试生产操作在供方的指导下由企业工人进行。

9、现场培训考试。

双方认为经过设备调试、投料试车过程，设备可以稳定运转。设备调试、投料试车合格。

项目企业代表签字

供货商代表签字

工程服务公司代表签字

报告日期 2003、10、20

Commissioning Report for Longan

武汉龙安集团有限责任公司 CFC—11 替代项目

设备调试、投料试车报告

设备名称：喷涂机

设备型号：ISOLTEC IT/6P-VR、

设备系列号：1218,1219,1220

生产厂家：意大利 TEC MAC

报告内容

联接设备相关管路，检查供电，供气是否正常，正常后，将一级送料泵加入相关料罐中，开始试车。

1、排清循环管路的 DOP，等待原料由循环管路流出并且无气泡即可。

2、调气缸。

3、排清枪头管路的 DOP。

4、检查压力表工作是否正常，急停按钮工作是否正常。

5、将各点温控仪设定好。

6、等待温度达到理想温度后，开枪喷涂。

7、产品操作培训。

8、在产品经企业验收合格后试生产，试生产操作在供方的指导下由企业工人进行。

9、现场培训考试。

双方认为经过设备调试、投料试车过程，设备可以稳定运转。设备调试、投料试车合格。

项目企业代表签字

供货商代表签字

工程服务公司代表签字

报告日期 2003、10、22

Commissioning Report for tianyun

北京天云汽车改装厂 CFC-11 替代项目

设备调试、投料试车报告

设备名称：高压发泡机

设备型号： A COMPACT 40FC

设备系列号： 271578

生产厂家： CANNON 公司

报告内容

在设备安装完毕，首先进行了全面检查，在确认压缩空气、加热/冷却循环水、供电正常后，加入 DOP 进行调试。待设备各部分运转正常，压力、温度、流量等参数稳定在正常值后，调试结束。调试同时经过了设备操作的初步技术培训。

调试结束后进入投料试车，投料试车的过程如下：

1. 排清原料桶内的 DOP，然后在两个料桶内分别加入原料，利用原料的输送排掉管道内的 DOP。

2. 将原料桶的料加到工作的位置，以降低 DOP 的浓度。

3. 检测设备的低压表的工作正常与否，高压表的高低压保护。紧急按钮工作正常。

4. 当原料的温度达到设定的要求的时候，开始做单组份测试。

5. 高压泵的性能检测。做性能曲线表。

6. 做自由发泡，检测自由发泡密度。自由发泡达到要求开始

试做产品。

7.产品操作培训。

8.在产品经企业验收合格后开始试生产，试生产操作在供方的指导下由企业工人进行。

9.现场培训考试。

三方认为经过设备调试、投料试车过程，设备可以稳定运转。设备调试、投料试车合格。

项目企业代表签字

供货厂商代表签字 刘永平

工程服务公司代表签字

报告日期:2004.2.12

Commissioning Report for Hongyu

河南红宇机械厂 CFC-11 替代项目

设备安装、调试、设料试车报告

设备名称：高压发泡机

设备型号：A COMPACT200

设备系列号：280198

生产厂家：CANNON 公司

报告内容：

在设备安装完毕后，首先进行了全面检查，在确认压缩空气、加热/冷却循环水、供电正常后，加入 DOP 进行调试。待设备各部分运转正常，压力、温度、流量等参数稳定在正常值后，调试结束。调试同时经过了设备操作的初步技术培训。

调试结束后进入投料试车，投料试车的过程如下：

1.排清原料桶内的 DOP，然后在两个料桶内分别加入原料，利用原料的输送排掉管道内的 DOP。

2.将原料桶的料加到工作的位置，以降低 DOP 的浓度。

3.检测设备的低压表的工作正常与否，高压表的高低压保护。紧急按钮工作正常。

4.当原料的温度达到设定的要求的时候，开始做单组份测试。

5. 高压泵的性能检测。做性能曲线表。

6. 做自由发泡，检测自由发泡密度。自由发泡达到要求开始试做产品。

7. 通过调理配方，选择合适的原材料，使 HCFC-141b 硬质发泡体系具有很好的流动性，能够满足企业层压机的要求。

8. 产品操作培训。

9. 在产品经企业验收合格后开始试生产，试生产操作在供方的指导下由企业工人进行。

10. 现场培训考试。

三方认为经过设备安装、调试、投料试车过程，设备可以稳定运转。设备调试、投料试车合格。

项目企业代表签字

供货厂商代表签字

工程服务公司代表签字

报告日期:2004.2.20

Commissioning Report for Yinxian

宁波鄞州汽车内饰件厂 CFC－11 替代项目
设备安装（改造）、调试、投料试车报告

设备名称：高压发泡机

设备型号：ACOMPACT40FC

设备系列号：271579

生产厂家：CANNON 公司

报告内容

根据受益企业及项目的要求，工程服务方提出了设备装置改造方案，即对五台模具进行了改造并增加了加热系统、新增加三台模内喷涂机、增加通风系统，提出了设备平面布置及安装方案，受益企业接受了这些方案，并实施。在设备安装完毕后，首先进行了全面检查，在确认压缩空气、加热/冷却循环水、供电正常后，加入 DOP 进行调试。待设备各部分运转正常，压力、温度、流量等参数稳定在正常值后，调试结束。调试同时经过了设备操作的初步技术培训。

调试结束后进入投料试车，投料试车的过程如下：

1、排清原料桶内的 DOP。然后在两个料桶内分别加入原料，利用原料的输送，排掉管道内的 DOP。

2、将原料桶的料加到工作的正常位置，以降低 DOP 的浓度。

3、检测设备的低压表的工作正常与否，高压表的高低压保护。紧急按钮工作正常。

4. 当原料的温度达到设定的要求的时候，开始做单组份测试。

5. 高压泵的性能检测。做性能曲线表。

6. 做自由发泡，检测自由发泡密度。自由发泡达到要求开始试做产品。

7. 通过调理配方，选择合适的原材料，使 HCFC-141b 发泡体系具有很好的流动性，能够满足企业模具的要求。

8. 产品操作培训。

9. 在产品经企业验收合格后开始试生产，试生产操作在供方的指导下由企业工人进行。

10. 现场培训考试。

三方认为经过设备安装、调试、投料试车过程，设备可以稳定运转。设备调试、投料试车合格。

项目企业代表签字

供货厂商代表签字

工程服务公司代表签字

报告日期:2004. 2. 28

A- Compact
High Pressure Metering Machines for Polyurethanes
A- Compact 系列聚氨酯高压发泡机

Automotive Interior & Exterior
汽车内饰件和外饰件
Refrigerator Insulation
电冰箱绝热
Panel Insulation
夹心板材绝热
Rigid, Flexible & Integral Foams for Furniture
家具用软、硬泡和自结皮泡沫
Piping Insulation
管道绝热
Technical Parts
技术性部件

New Cannon "A-Compact", versatile, reliable and with a compact design, a concrete response to produce a wide range of PU foams in the most varied of applications.
新型的康隆"A-Compact"系列设备，用途广泛、可靠性强、具有紧凑的设计、具体体现在可生产多用途、大范围的聚氨酯泡沫。

New Cannon A-Compact: technology and compactness for great reliability and quality.
新型康隆 A-Compact 系列设备：技术与集约性确保了质量与可靠性。

In the moulded polyurethane sector there is an ever growing demand for high-pressure metering machines which combine simplicity of management, high technical and quality standards and efficiency and reliability, with the need to keep investment costs down.
在模塑聚氨酯生产领域，对高压发泡机的需求不断增长。同时还需要这些设备具有易于管理，高技术含量，高质量标准，高效率和高可靠性。此外，更需要它们具备较低的投资成本。

The new Cannon "A-Compact" has been developed to give a concrete response to these needs and to solve the production problems of small and medium-sized businesses, which are extremely rationalized but at the same time have high technical and technological content.
新型康隆 A-Compact 系列机型的研发满足了以上需求并解决了中小企业的生产问题。在具备高度合理性的同时带有很高的科技含量。

Ever since its initial presentation, the "A-Compact" series has aroused great interest on the market and has quickly become commercially successful.
自问世以来，"A-Compact"系列设备引起了市场的极大兴趣并快速取得了商业上的成功。

Apart from particular types of application which use charged materials, the "A-Compact" models are now widespread and used to produce a wide range of polyurethane foams in the most varied of applications: from rigid low-density polyurethanes for thermal insulation to flexible foam cushioning for the car industry and furnishings, from fake wood to manufactured products in integral leather.
除了使用填充材料的特殊应用之外，" A-Compact" 机型现在被广泛使用于其他各类聚氨酯泡沫生产中：从用于绝热的低密度聚氨酯硬泡到汽车工业和家具业用的软泡，从仿木材料到自结皮产品。

Moreover, the "A-Compact" high-pressure models are often the ideal solution. They are more logical and immediate for those customers who intend to replace low-pressure machines with a more modern technology with low environmental impact (they do not use chlorinated solvents to wash the heads), which allows more efficient production processes and foams which feature better quality and greater physical and mechanical properties.
此外，针对一些想用低环境影响的相对现代的技术取代低压发泡机的客户（不用含氯溶剂清洗枪头），"A-Compact" 高压机型常常是理想的解决方案。其生产工艺更为有效，使泡沫的物理机械性能更好，泡沫质量得以明显改善。

Almost forty years of experience in the mixing, metering and foaming of polyurethanes, more than 10,000 metering machines installed in the world and advanced and constant research and development of new technical solutions have led Cannon towards a constant technological improvement and the adoption of new and innovative machine configurations, to improve performance and safety.
康隆公司在聚氨酯混合、计量和发泡方面已有近 40 年的经验。目前已在世界范围内安装了超过 10，000 台发泡设备。先进的、持续不断的研究和发展使康隆公司具备了持续的技术进步和设备结构上的创新。性能与安全性得以不断改善。

The "A-Compact" model is the tangible result of Cannon's commitment to developing and designing its machines using the most sophisticated technologies available.
"A-Compact" 机型是康隆公司承诺采用最先进技术进行设备开发与设计的切实体现。

Based on the design of the well-known Cannon "A-System", the new "A-Compact" series can, for all purposes, be considered a compact version of it, adopting the same components.
以众所周知的康隆 "A-System" 系列作为设计基础，新的 "A-Compact" 系列可以被看作是针对所有用途的、采用相同部件的 "A-System" 系列的集约型设备。

Cannon has selected world's best-known manufacturers, to guarantee that the most important machine's parts-control systems, instrumentation and electrical, mechanical and hydraulic devices-can be readily replaceable throughout the world.
康隆选择了世界著名的制造商，以确保机器各重要部分如：控制系统、仪器、仪表、电器、机械以及液压装置的质量，并易于在世界各地进行更换。

The compact and rational design means that all the machine modules-tanks, metering and electric panel-can be positioned on a single base, while the open structure allows excellent accessibility to all the parts for their easy maintenance and cleaning.

紧凑合理的设计意味着全部设备的罐组、计量系统和电控柜都可以放置在一个单独的底盘上。同时开放式的结构使得设备部件的维护和清洗十分方便。

Some of the main aims in the development phase were to make a new unit which would be easy to transport, would require less room for installation but above all would require no accessory wiring so that it would be immediately ready to start production-in other words "Plug & Play"!
在开发阶段的主要目标就是要使设备容易运输、占据较小空间。最主要的是无需额外配线即可以马上开始生产。换句话说就是"即插即用"!

Metering Module
计量模块

Taking account of the outputs required, the features of the chemical components and the need to meter them very precisely, Cannon uses high-pressure axial-piston pumps which can guarantee the processibility of complex formulations, using water and other potentially corrosive mixtures.
考虑到流量要求、化学组分的特性以及非常精确的计量，康隆采用轴向柱塞泵以确保证上述复杂配方的加工性。配方中可能含水或其他具有潜在腐蚀性的成分。

Cannon high-pressure pump with fixed output equipped with mechanical couplings.
康隆高压泵，固定输出，带有机械连接。

Thanks to its tried and tested experience in the mixing of polyurethanes, Cannon developed a complete series of high-pressure pumps with fixed and variable output which have been very successfully utilized for several years on other Cannon high pressure machines.
感谢在聚氨酯混合方面的不断尝试与多年的经验，康隆公司开发了一套完整的固定或变量输出的高压泵。并在过去的几年中将其成功地应用在了其它高压设备中。

Cannon pumps represent a real and valid alternative to the models commonly available on the market and thanks to their intrinsic reliability, metering accuracy and efficiency they are now widely used all over the world. The pumps are driven by 2 high quality AC electric motors, also available in tropicalised version.
康隆泵的推出代表着一个对现有市场上的通用型号泵的现实、有效的替代选择。由于其固有的可靠性、高计量精度和效率，康隆泵已在世界范围内被广泛使用。泵由 2 台高质量交流马达驱动，并适合于热、湿带气候条件。

Dedicated level sensors monitor the component volume inside the tank: in detail the magnetic switches based system.
专有液位传感器监控罐中的物料量：详图为磁性翻转系统。

The motor and pump are connected by means of a mechanical joint, where a double gasket ensures the seal. On the Isocyanate side this is kept constantly lubricated by a special forced lubrication circuit, to guarantee a longer useful life.
马达和泵由一个机械连轴器连接，这个连轴器有两个机械密封圈以确保密封。为了保证较长的使用寿命，在异氰酸酯端有一个强制润滑循环回路保证持续润滑。

Temperature Control System
温控系统

Cannon "A-Compact" model are designed to guarantee accurate and constant control of component temperature. The elements, which form the system, are:

- tanks with capacity of 70 and 250 litres, always jacketed;
- heat exchangers;
- electrical heating elements which can withstand the most severe working conditions;
- recycle stream distributors which guarantee a constant flow of the material through the temperature control circuit during machine production.

康隆"A-Compact"机型的设计要保证对原料温度进行精确和稳定的控制。系统的部件包括：

- 带有夹套的 70 和 250 立升的料罐；
- 热交换器
- 能够经受多数恶劣工作条件的电加热元件；
- 用以保证生产时稳定的物流通过温控回路的物流分配器

The temperature regulation circuit must be connected to an external source of cold water (chiller).
温度调节循环必须与一个外部冷水源相连接。（冷水机）

4 level with magnetic contacts control the volume of material in the tank: minimum, maximum and start and finish loading.
带有 4 个液位的磁接触式液位控制器，控制罐中原料量：
最小值，最大值，开始加料和停止加料。

Each tank is fitted with a sight glass, operated magnetically by the movement of the float inside the tank itself.
每个罐都配有可视玻璃管，由罐中浮漂运动进行磁转换显示。

These sight glasses with adjustable positioning, also manage the automatic tank filling system.
这些可调整液位的可视玻璃管同时控制着自动上料系统。

Controls and Operator interface
控制和操作界面

All the machine functions are monitored and controlled in real time by a PLC interfaced to a dedicated control panel, based on Siemens "Touch Screen" technology.
设备的全部功能均由 PLC 即时监视和控制。PLC 与专用控制面板相连。这个控制面板采用西门子"触摸屏"技术。

All the main process data can be entered by means of the keypad and displayed on the screen so that the operator can use and manage the pouring parameters more easily.

所有主要工艺数据都可以由键盘输入，并显示在屏幕上，以便操作者更容易应用和管理灌注参数。

The "A-Compact" control panel is a Siemens "Touch Screen" model
"A-Compact" 控制面板是西门子"触摸屏"。

Using the control panel the "Week-End Cycle" can be set and programmed for low and high-pressure recycling of the components when the normal production cycle has stopped, to prevent the materials sedimenting in the tanks during long shutdown periods.
当正常的生产循环停止时，使用控制面板的"周末循环"可以设置和编制组分的高、低压循环，以防止停工时间较长时罐中的原料沉淀。

Standard Special Equipment
标准专用设备

For easy maintenance and to keep the machine in optimum condition, all the electrical wires pass through the frame. They are therefore not visible and not subject accidental handling.
为了便于维护和使设备处于最佳状态，全部的电线都穿入机架内。从外面看不到，从而防止意外事故。

Each drainage line is equipped with metal safety plugs. This solution means that the necessary operations can be performed on unplanned leaks of material.
每个排放管线都配有金属安全堵塞。这意味着即使有意外原料泄露，也采取了必要防范措施。

Anti-corrosion bolts were also specified to guarantee the best circuit seal even in extreme climate conditions.
特制的防腐螺钉可以保证即使是在极端的气候条件下也可以保持最好的回路密封效果。

Mixing Head
混合头

In the light of its great experience acquired in the development of mixing technologies to produce polyurethane foams, and its constant commitment to search for new and innovative industrial solutions, Cannon has developed a wide range of high-pressure heads which can answer the special needs of specific application sectors.
根据在生产聚氨酯泡沫所需的混合技术的开发中积累的丰富经验以及保持创新的不变承诺，康隆公司开发了大流量范围和不同形式的高压混合头以满足特殊应用领域中的特殊需求。

Component's piping to the mixing head are covered with a special explosion proof outer covering designed by Cannon.
连接混合头的高压原料管路装在康隆设计的特殊防爆裂套管里面。

The Cannon "A-Compact" metering machines can be equipped with two models of high-pressure head:
- Cannon FPL with "L-shaped" mixing chamber for low and high-output laminar flows for shots into open mould and suitable for all formulations. Its reliability, compactness and low maintenance make this head the essential component to obtain high-quality products.
- Cannon LN with straight mixing chamber, simple and economical at low and high output, suitable for applications with rigid foam at low density.

康隆"A-Compact"设备可以配两种形式的高压混合头：
- 康隆 FPL 枪头带有"L 型"混合室。针对开模浇注，可以提供高、低不同流量的层流浇注，适合于所有发泡配方。其可靠性、紧凑性和低保养需求使它成为生产高质量产品的基本元件。
- 康隆 LN 枪头带有直式混合室。高、低流量输出简单、经济，适合于低密度硬泡的应用。

Using high-pressure technology to mix components gives a significant benefit; it is a production process which does not use solvents, thus considerably improving working conditions and it is more respectful and aware in safeguarding and protecting the health of workers and, more in general, its surroundings.

使用高压技术混合原料有一个很大的好处，那就是在生产过程中不需要使用溶剂，因而改善了工作条件、维护了工人的健康，同时也保护了环境。

All the "A-Compact" versions are equipped with a hardware package and software for the independent calibration of the components through the mixing head.
全部的"A-Compact"机型都配有一个硬件包和通过混合头进行各组分分别校准的软件。

Technical Manual on CD-ROM
光盘技术手册

All the "A-Compact" metering machines come with a CD-ROM containing the machine's technical manual in electronic format. The manual, divided into two main sections (Part I-Maintenance; Part II-Spare Parts) is easy to consult and the parts of interest can be printed by means of a simple interface.
全部的"A-Compact"设备都带有一套 CD 光盘，内容是电子版本的设备技术手册。手册分为两个主要部分（部分 I - 维护；部分 II -备件），极易参阅，感兴趣的部分还可以通过简单的接口连接打印出来。

Cannon LN10 high-pressure head with straight mixing chamber.
康隆 LN10 型带有直式混合室的高压混合头。

Optional Devices
可选装置

All the "A-Compact" series models can, on request, be equipped and supplied with a series of optional devices.
根据需要，康隆"A-Compact"系列机型可以配备一系列的可选装置。

OVS Output Visualisation System-Cannon has developed a dedicated system which can be easily interfaced with the machine PLC to display the main process data such as: total output, ratio, Polyol and Isocyanate output, weight poured and signaling and description of alarms.

OVS 输出显示系统 - 康隆已经开发了一套专用系统，可以通过 PLC 设备轻易的显示主要工艺数据，例如：黑、白料总输出量、各自输出量、比例、浇注重量、警报信号和报警描述等。

The values are measured by two volumetric flow transducers, which are fitted on the delivery line of each component.
安装在各组分输送线上的两个体积流量计用来测量流量。

Cannon AND+ME. Air emulsifier complete with air nucleation control system.
康隆 AND+ME。带有空气形核控制系统的空气乳化器。

Nucleation of air in the Polyol circuit is critical for those applications (e.g.fake wood and structural rigid), which require the polyurethane foam to flow freely in the mould-filling phase. Cannon's emulsifier solution can be supplied complete with automatic device to monitor the nucleated air in the component.
白料回路中的空气形核对于某些应用是很关键的，（例如仿木材料和结构硬泡）。这些应用需要聚氨酯在模具填充阶段能自由流动。康隆带有自动装置的乳化器方案可监控原料中的空气形核。

The mixing head can be mounted vertically and/or horizontally on a turning arm mounted on the machine frame.
The exception to this is the "A-Compact" 200 model where the head movement arm is mounted on a support separate from the metering unit.
混合头可以被垂直 和/或 水平安装在机架的旋转吊臂上。
这里有一个例外就是 "A-Compact 200"机型，它的混合头吊臂被安装在与计量单元分开的支撑上。

Cannon LN5 model, suitable for spray application and low output cavity filling.
康隆 LN5 型枪头适用于喷涂和低流量灌充。

Mechanical stirrer mounted on the polyol tank.
安装在白料罐上的机械搅拌器。

The filling of the metering unit tanks can be automated by pneumatic pumps which transfer the chemical components from drums, or by means of ON/OFF valves which open/close the filling line directly connected to the storage system.
机器料罐的上料可以通过气动上料泵自动完成。它们可以从原料桶中将化学原料供入料罐，或者通过开/关阀直接与储料罐的上料线连接。

The filling procedure can be managed automatically by means of the levels on the machine.
上料过程可以通过设备上的液位计来自动控制。

The material storage tanks can be equipped with mechanical stirrers complete with motor, reducer and mechanical seal with liquid barrier.
原料储罐可以配备带有马达、减速器和液环屏蔽的机械密封的机械搅拌器。

The main aim of the stirrer, generally mounted on the Polyol side, is to keep the component moving, ensuring a homogeneous mixture and a constant temperature.
通常装在白料罐的搅拌器的目的在于使原料运动，以保证混合物均匀和温度恒定。

Instead of mechanical joints the machine can be equipped with magnetic joints, which offer greater guarantees of safety when working with potentially inflammable and toxic liguids.
设备可以配备磁驱动联结来取代机械联结，这样可以在使用易燃和有毒原料时更大程度的保证安全。

As there are no gaskets or seals on the moving mechanisms there is no possibility of leaks and maintenance is reduced.
由于磁驱动联结，转动机械装置上没有垫圈和密封，所以就没有泄漏的可能，同时也减少了维护。

Cannon high-pressure pump with variable output and equipped with magnetic coupling.
康隆带有可变流量和磁联结的高压泵。

Versions Available
可提供机型

A-Compact Standard
A-Compact 标准型

Model equipped with variable-output high-pressure pump and with no frequency control devices.
这种类型配有变量输出高压泵但不带频率控制装置。

The output is adjusted manually by means of the hand wheel on the metering pumps.
输出的调整是通过计量泵上的手轮来手动实现的。

A- Compact FC (Frequency Controlled)
A- Compact FC 变频控制型

These units are equipped with fixed-output pumps and devices to control the motor speed frequency.
这些设备配有定量输出泵和马达速度频率控制装置。

The motor turning speed is adjusted by means of the output control in open loop while a special frequency control keeps any speed variation constant.
马达转速由一个特殊的频率控制器变更速度常量进行控制。从而达到开环调节控制流量。

With this solution, the pump output can also be set from the operator control panel by setting the frequency required.
采用这种方法，操作者可以通过控制面板设置所需频率来设置泵的输出。

A- Compact CL (Closed Loop)
A- Compact CL 闭环控制型

This model is a hybrid version of the two previous ones equipped with variable-output pumps, frequency devices to control the motor speed and flow transducers positioned on the component lines, for the automatic closed-loop control of the output and ratio.
这种类型是上述两种机型的混合。它带有变量泵和变频装置来控制马达速度和装在原料管路上的流量传感器，可以自动闭环控制输出和原料的比例。

In this system the values set for these parameters are constantly compared with those measured in real time by the control devices.
这个系统中，控制装置将实际测定值与参数的设定值不断进行比较。
Whenever deviations beyond the tolerances allowed are recorded, the control system adjusts the values, altering the motor speed to guarantee that the ratio between the components is kept stable.
在出现超过允许误差范围的记录时，控制系统进行调节，从而改变马达速度以保证原料间的比例稳定。

The self-adjustment function is guaranteed by the combined action of the flow transducers and the frequency checks, which manage the turning speed of the metering pump motors.
通过实现调节计量泵马达转速，流量传感器和变频调节器可实现自调节功能。
The accuracy and precision of the closed-loop control developed by Cannon has been statistically proven in that it has passed the most severe tests with the most critical working conditions.
通过很多临界工作状态的反复测试，康隆开发的闭环控制的精度和准确性已得到了充分验证。

For double polarity motors (4/8 poles) the minimum output is calculated with 8-pole operation and the maximum output with 4 poles at 50 Hz. Furthermore, the minimum output is calculated with the hand wheel positioned at 25% of the maximum setting value. The output is calculated assuming a density of 1.0 kg/l for Polyol and 1.2 kg/l for Isocyanate. The absorbed power is calculated at 200 bar and takes account of all the electrical uses expected for the Standard machine configuration and optionally installed on request. The A-Compact CL version is a Standard model equipped with a frequency inverter for the motor speed control.

对于双极性马达（4/8 极）最小输出量是根据 8 极操作来计算的，而最大输出量则是根据 4 极 50 赫兹计算的。此外，最小输出是在手轮位于最大设定值 1/4 处来计算的。输出按白料密度 1.0 公斤/升和黑料密度 1.2 公斤/升来计算。功率的计算是在 200 巴压力下运行，并考虑到了标准配置和所需任选件均配备的全部用电。A-Compact CL 型是标准型加一个变频器来控制马达转速。

The minimum output is calculated at 20 HZ while the maximum output at 60 HZ. The output is calculated assuming a density of 1.0kg/l for Polyol and 1.2 kg/l for Isocyanate. The absorbed power is calculated at 200 bar and takes account of all the electrical uses expected for the Standard machine configuration and optionally installed on request.
最小输出是以 20 赫兹时计算，最大输出是以 60 赫兹时计算。输出用白料密度 1.0 公斤/升和黑料密度 1.2 公斤/升来计算。输出按白料密度 1.0 公斤/升和黑料密度 1.2 公斤/升来计算。功率的计算是在 200 巴压力下运行，并考虑到了标准配置和所需任选件均配备的全部用电。

Overall dimensions are related to every machine range except for the "A-Compact" 200 model.
设备外型尺寸适于除 "A-Compact" 200 机型以外的所有机型。

Technical Features – 技术规格
Machine Model – 设备型号
Motor Poles – 马达极性
Pump size – 泵规格
(cc/rev) – （ cc / 转 ）
Pol – 聚醚
Iso – 异氢酸酯
Output Range – 输出范围
(g/s) – （ 克/秒 ）
Ratio – 比例
Min – 最小
Max – 最大
Absorbed Power – 装机功率
(kW) – （千瓦）
Air Consumption – 空气消耗
(nl / shot) – （标升/每次浇注）
Layouts – 布局图

N° 7 POLYURETHANE MACHINES FOR SPRAYING/POURING APPLICATIONS, model "ISOLTEC IT/6P-VR", (capacity 3-6 Kg/min) to be used with HCFC 141b and partial water based systems (in the interim) and HCF or water based systems (in the long term) as an alternative blowing agent.

This machine has a welded rugged steel frame and it is fitted with wheels for easy handle. Panels cover the moving parts to avoid workers' injuries

Technical data

Adjustable ratio	**1÷3 - 3÷1**	**in continuous**	
Minimum output (at low speed)	Kg/min	3	
Maximum output (at high speed)	Kg/min	6	
Min working pressure	bar	100	
Compressed air	bar	6÷8	
Heat exchanger max power consumption	Kw	4,8	
Heating hoses max power consumption	Kw	3	
Machine gross weight	Kg	220	
Machine net weight	Kg	200	
Mixing gun weight	Kg	1,2	
Overall dimension	cm	80x70x150h	
Working voltage	380V	50Hz	3 Phases

Other voltage are available under request

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The main technical features are:

- Rugged frame made in carbon steel, covered with corrosion resistant paint. The chassis is mounted on heavy duty castors with permanently lubricated bearings for an easy movement.

  All the moving and/or dangerous parts are protected by panels to avoid worker injures.

- N° 2 positive displacement high pressure piston pumps (double effect), specifically designed to process polyurethane chemicals, capable to handle viscosity up to 3,000 cps; each pump is driven by a powerful pneumatic motor (compressor to be provided by the customer).
  Both the pumps are provided with a lubrication system avoiding the hardening of materials, extending the life of the pumps seal and reducing maintenance downtime.
  The ratio is **really variable in continuous** without using a kit and the ratio changing is very fast and easy only by moving the metering pumps on their guides.

  In-line filter before the pumps are mounted.

- High pressure in-line filters avoid solid particles into the components circuits.

- Overpressure safety switches are placed after the metering pumps showing the working pressure and stopping the machine in case of overpressure is occurred.
  Moreover the overpressure is settable by the worker.
  Pressure equilizers are also mounted to eliminate the pulse of the pressure and to have an even and constant output.

- The machine is provided with a powerful pneumatic motor -Ø 160mm- driving the metering pumps. It is complete with quick-exchange solenoid valve, ½" pressure regulator and manometer to read the inlet air pressure (compressor to be provided by the customer).

- High pressure, self-cleaning by air, mixing gun mod. «AP/XA» (patented), suitable to spray or pour polyurethane formulations.

  It consists of a small rotating valve, automatic operated, which changes from the mixing phase to the air purge.

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It is possible to use spraying nozzles with several angles (from 15° to 120°). types of dispensing (round, flat, fan pattern, etc.) and outputs.

A special adapter allows pourings.

This gun, thanks to its simplicity - only by unscrewing four screws you disassemble the whole head -, allows a very fast and easy maintenance.

- A control panel is provided for easy access and protected against weather housing all the signals and fuses for every circuit.

Two digital thermometers/thermostats with microprocessor are provided to select the working temperature on each line, granting a perfect heating of the components till the mixing head

A safety pressure gauge shows the operating pressure that can be changed with pressure reducers.

N°1 electric timer is provided to dispense accurate quantity of foam. The dispensing timer is programmable and settable by the worker through a digital panel and has a high accuracy (± 0,1 sec.)

All the displays are in English

- 30 mt PTFE, high pressure hoses for both components with fittings and resistences heaters and connectors.

Insulated foamed polyethylene covering and rilsan sleeve protect the high pressure hoses.

High efficiency hoses heating system with independent temperature control placed on the control panel is provided **on each line**.

With our heating system, the temperature is always constant and automatically controlled.

The polyol hose will be marked with **A** and the isocyanate one with **B.**

- N°2 high pressure hoses with a length of 2 mt will be provided for testing

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- Components temperature control through digital independent thermostat with microprocessor by powerful in-line heat exchangers with three 800 watt heat rods per heater (2.400 watt per side).

- N° 2 loading pumps, pneumatically operated, are provided to load the polyol and the isocyanate from the storage drums with the following characteristics:

  Double membrane pneumatic pump mod. "**TM 30**", with suction and output ports of 1/2", compression ratio 1:1, maximum output of 30 lt/1' (considered with water and suction and output ports free); the pump is provided with manometer and pressure regulator .

The equipment here above described is designed under the international safety and quality standards and is built using only the best quality components.

Everything is designed to be the easiest and the most reliable possible, using the ergonomic studies to help the workers in their job.

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Offer N 9281 E
January 23rd, 2003

N° 3 POLYURETHANE MACHINES FOR SPRAYING/POURING/INJECTING APPLICATIONS, model "ISOLTEC IT/14", (capacity 3-14 Kg/min) to be used with HCFC 141b and partial water based systems (in the interim) and HCF or water based systems (in the long term) as an alternative blowing agent.

This machine has a welded rugged steel frame and it is fitted with wheels for easy handle. Panels cover the moving parts to avoid workers' injuries

Technical data

Adjustable ratio		**1÷1 - 1÷3 in continuous**
Minimum output (at low speed)	Kg/min	3
Maximum output (at high speed)	Kg/min	14
Working pressure	bar	100
Compressed air	bar	6÷8
Heat exchanger max power consumption	Kw	9
Heating hoses max power consumption	Kw	3
Hydraulic unit max power consumption	Kw	5,5
Machine gross weight	Kg	310
Machine net weight	Kg	280
Mixing gun weight	Kg	1,2
Overall dimension	mt	0,8x1,5x1,2h
Working voltage	380V	50Hz 3-phases
	Other voltage on request	

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The main technical features are:

- Rugged frame made in carbon steel, covered with corrosion resistant paint. The chassis is mounted on heavy duty castors with permanently lubricated bearings for an easy movement.

  All the moving and/or dangerous parts are protected by panels to avoid worker injures.

- N° 2 positive displacement high pressure piston pumps (double effect), specifically designed to process polyurethane chemicals, capable to handle viscosity up to 3,000 cps; the pumps are driven by a powerful hydraulic motor.
  Both the pumps are provided with a lubrication system avoiding the hardening of materials, extending the life of the pumps seal and reducing maintenance downtime.

  The ratio is **adjustable in continuous** and the ratio changing is very fast and easy only by moving the metering pumps on their guides.

  In-line filters protect the metering pumps from solid particles.

- High pressure in-line filters before and after the metering pumps avoid solid particles into the components circuits.

- Overpressure safety switches are placed after the metering pumps; they show the working pressure and stop the machine in case of overpressure, which value is set by the worker. Pressure equilizers are also mounted to eliminate the pulse of the pressure and to have an even and constant output.

- The machine is provided with a powerful hydraulic unit driving the metering pumps. It is complete with solenoid valve to control the up and down of the hydraulic cylinder, a gauge to read the oil pressure.

  Four shock-isolating mountings are used to reduce noise and vibrations.

  An air-oil heat exchanger, complete with suction electrofan and thermostat, is provided to cool down the hydraulic unit oil and to keep it automatically at the right temperature.

  This unit is supplied with visible level, thermometer to read the oil temperature, pressure

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regulator and output regulator to adjust the working output and pressure.

All the connections are made with high pressure hoses.

The hydraulic unit has the following characteristics:

* Oil tank capacity: 75 lt
* Max output of gear hydraulic pump: 24 lt/1'
* Electrical motor: 5,5KW

- High pressure, self-cleaning by air, mixing gun mod. «AP/XA» (patented), suitable to spray or pour polyurethane formulations.

  It consists of a small rotating valve, automatic operated, which changes from the mixing phase to the air purge.

  It is possible to use spraying nozzles with several angles (from 15° to 120°), types of dispensing (round, flat, fan pattern, etc.) and outputs.

  A special adapter allows pourings.

  This gun, thanks to its simplicity - only by unscrewing four screws you disassemble the whole head -, allows a very fast and easy maintenance.

- A control panel is provided for easy access and protected against weather housing all the signals and fuses for every circuit.

  Four digital thermometers/thermostats with microprocessor are provided to select the working temperature on each line, granting a perfect heating of the components till the mixing head

  A safety pressure gauge shows the operating pressure that can be changed with pressure reducers.

  N°1 electric timer is provided to dispense accurate quantity of foam. The dispensing timer is programmable and settable by the worker through a digital panel and has a high accuracy (± 0,1 sec.)

  Displays are in English

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- N° 1 set of 30 mt PTFE, high pressure hoses for both components with fittings, resistences heaters and connectors.

  Insulated foamed polyethylene covering and rilsan sleeve protect the high pressure hoses.

  High efficiency hoses heating system with independent temperature control placed on the control panel is provided on each line.

  With our heating system, the temperature is always constant and automatically controlled.

  The polyol hoses will be marked **A** and the isocyanate ones **B**.

- Components temperature control through digital independent thermostat with microprocessor by powerful in-line heat exchangers with three 1500 watt heat rods per heater (4500 watt per side).

- N° 2 loading pumps, pneumatically operated, are provided to load the polyol and the isocyanate from the storage drums with the following characteristics:

  Double membrane pneumatic pump mod. "**TM 30**", with suction and output ports of 1/2", compression ratio 1:1, maximum output of 30 lt/1' (considered with water and suction and output ports free); the pump is provided with manometer and pressure regulator .

The equipment here above described is designed under the international safety and quality standards and is built using only the best quality components.

Everything is designed to be the easiest and the most reliable possible, using the ergonomic studies to help the workers in their job.
One set of tools for the maintenance will be provided.

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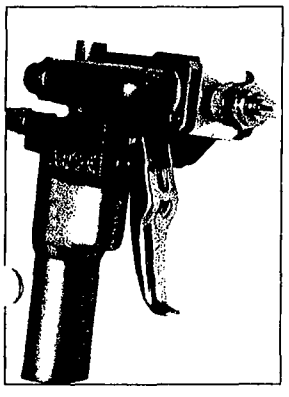
ISOLTEC

MACCHINA AD ALTA PRESSIONE PER SPRUZZO E COLATA DI RESINE BICOMPONENTI

HIGH PRESSURE MACHINE TO SPRAY AND POUR TWO-COMPONENTS CHEMICALS

高压双组分喷泡机

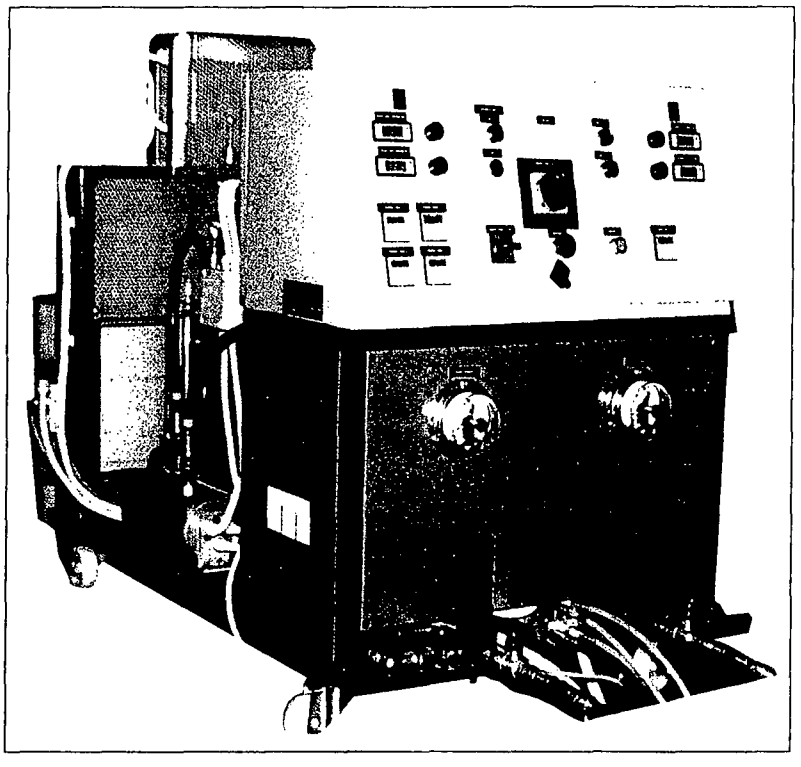


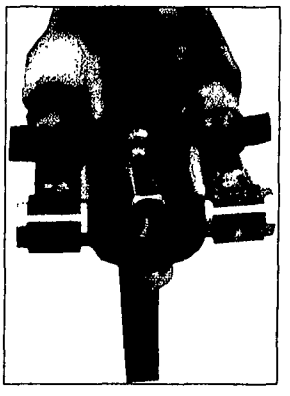
Testa brevettata autopulente ad aria

Patented self-cleaning mixing head by air

专利空气自洁式混合枪头

Mod. AP/X





Testa autopulente meccanica

Mechanical self-cleaning mixing head

机械自洁式混合枪头

Mod. AP/RC

La macchina ad alta pressione mod. ISOLTEC dosa, miscela ed eroga materiali bicomponenti, dalle schiume poliuretaniche - rigide, flessibili ed integrali - agli elastomeri, dagli adesivi strutturali alle resine fenoliche, etc. Questa unità è stata progettata per garantire la massima affidabilità anche nelle più severe condizioni di lavoro e consentire una manutenzione facile e veloce di ogni sua parte. La macchina racchiude in sé la migliore componentistica presente sul mercato nazionale ed internazionale. Progettata seguendo i migliori standard qualitativi, la ISOLTEC è una macchina compatta, razionale, funzionale e di facile utilizzo, che garantisce sempre un ottimo prodotto finale.

The high pressure machine mod. ISOLTEC meters, mixes and dispenses two components chemicals (polyurethane foam -rigid, flexible or integral-, elastomers, two components adhesives, phenolic resins, etc).
This unit is designed to be very reliable in the most severe working conditions, with low, easy and fast maintenance.
It is built only with the international top quality components.
Designed under the international quality standards, the ISOLTEC is a compact and sturdy unit, very easy to work with and granting always the best final product.

ISOLTEC型高压喷泡机对双组分原料进行计量，
混合和调配喷注（聚氨酯泡—
硬泡，软泡或是自结皮-，
弹性体，双组分粘胶，酚醛树脂等）。
在苛刻的工作条件下，
这套设备仍显示了非常高的稳定性且维护简单、
快速。　采用国际优质元件制造。
按照国际质量标准设计，
ISOLTEC高压喷泡机是一个紧凑，
坚固的设备，操作简便，可生产
最好的成型产品。

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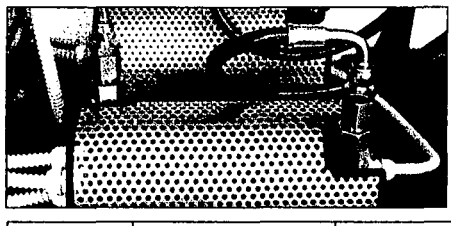
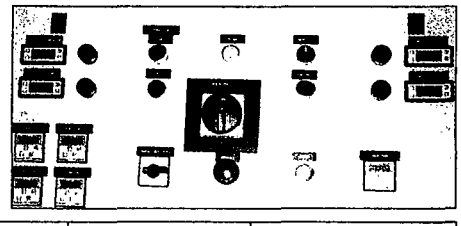
E IMPIANTI INDUSTRIALI

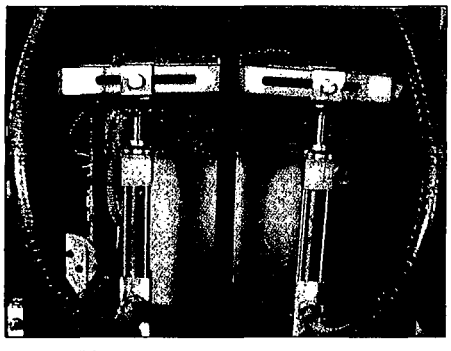
Le ridotte dimensioni, la maneggevolezza e, soprattutto, l'affidabilità, rendono la ISOLTEC l'unità ideale ogni volta che si debbano erogare materiali bi-componenti (schiume poliuretaniche -rigide, flessibili ed integrali-, elastomeri, adesivi ed altri materiali affini).
Le portate variano da 0,5 Kg/min. fino a 18 Kg/min.
Azionamento: è effettuato tramite centralina idraulica o con motore pneumatico, a seconda della versione.
Dosaggio: effettuato tramite pompe volumetriche ad alta precisione. Esse sono progettate appositamente per questo impiego e possono lavorare anche con materiali caricati.
Testa di Miscelazione: varie sono le teste di miscelazione disponibili, a seconda dell'utilizzo finale: Spruzzo, Colata, Iniezione. Tutte sono AUTOPULENTI, ergonomiche e dal peso contenuto.
Rapporto: può essere fisso o variabile in continuo, a seconda del modello.
Tubazioni: ad alta pressione, riscaldate e con lunghezza fino a 100 metri.
Termostatizzazione: indipendente su ciascuna linea, con controllo automatico. Avviene tramite scambiatori di calore in linea e speciali tubazioni ad alta pressione con resistenze a BASSA TENSIONE.
Quadro di Controllo: racchiude tutta l'elettronica di bordo, la strumentazione di controllo, i sistemi di sicurezza, etc.
Sicurezza: la macchina è dotata di dispositivi quali pressostati di sicurezza, filtri ad alta pressione, termostati digitali, etc. che intervengono in caso di malfunzionamento. Tutte le parti in movimento sono protette da carteratura antinfortunistica.

Its compact dimension, the easy handling and, above all, its reliabily, make the ISOLTEC the ideal multi-purpose unit to dispense two-components chemicals (polyurethane foams - rigid, flexible and integral -, elastomers, adhesives and other compatible plural components chemical systems).
Outputs from 0,5 Kg/min. to 18 Kg/min.
Motor: it can be hydraulically or pneumatically driven, according to the model.
Metering: by high precision positive displacement pumps. Designed just for this application, they can process also chemicals with fillers, with a long service life.
Mixing Head: a wide variety of mixing heads is available for Spray, Pour and Injection. All the guns are SELF-CLEANING, ergonomic and very light.
Ratio: fixed or variable in continuous, according to the model.
Hoses: high pressure heated hoses with a max length of 100 meters.
Heating: LOW VOLTAGE automatically controlled heating, independent on each components line, provided with powerful heat exchangers and special high pressure hoses.
Control Panel: it includes all the electronical components, the control instruments and the safety systems.
Safety: the unit is provided with overpressure safety switches, high pressure filters, digital thermometers, etc. to avoid problems. All movable parts are protected by metal panels.

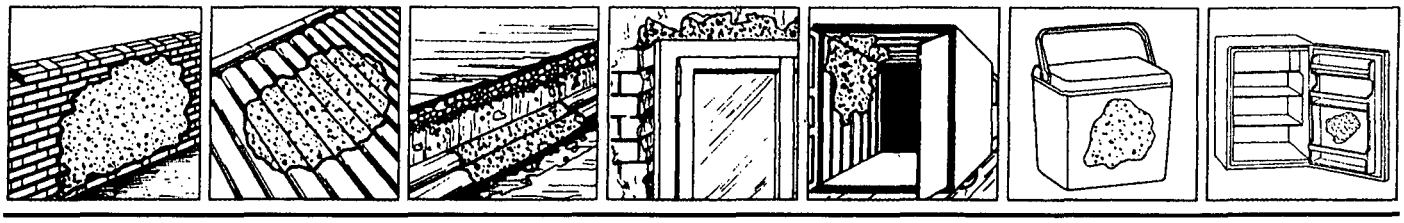
ISOLTEC型喷泡机结构紧凑、操作简便，
最重要的是它超常的稳定性都使得它成为理想的多
功能双组分喷泡设备。
（聚氨酯泡—硬泡，软泡或是自结皮-
，弹性体，
双组分粘胶及其他相容的双组分化工材料）。
输出量从0.5Kg/min到18Kg/min。
电机：根据不同的型号，可由液压或者气动驱动。
计量系统：
由高精度变量泵设计组成的计量系统，
带有滤清器，使用寿命长。
混合枪头：各式枪头都可
用于喷射、浇注和充注。
所有枪头都为自洁式，
非常轻，便于人工操作。
料比：根据不同型号，
分为固定比例和连续可调比例。
料管：高压可加热软管最大长度可达100米。
加热系统：
每一组分料路都有独立的低压自动控制的加热系统，
都配有高效的热交换器和特
殊的高压料管。
控制面板：
它包括所有电器元件、控制装置和安全系统。
安全系统：这套设备提供了超高压安全开关，
高压滤清器、数显温控仪等部件以保证安全。
所有的活动部件都有金属保护罩。







Modello Model	Portata/Output 输出量	Dimensioni/Dimensions 尺寸	Peso/Weight 重量	Tubazioni/Hoses 料管
IT 3	0,5÷3 Kg/min	0,8x1,3x1,2h mt	250 Kg	Max 100 mt
IT 6	1,5÷6 Kg/min	0,8x1,3x1,2h mt	260 Kg	Max 100 mt
IT 9	3÷9 Kg/min	0,8x1,5x1,2h mt	280 Kg	Max 100 mt
IT 12	4÷12 Kg/min	0,8x1,5x1,2h mt	300 Kg	Max 100 mt
IT 18	6÷18 Kg/min	0,8x1,5x1,2h mt	330 Kg	Max 100 mt



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Attachment 4

Phase-out ODS in Chinese Foam Sector

Project Number: MP/CPR/01/167

Bid Number: CIEC2003-009

CONTRACT FOR PROVISION OF ENGINEERING SERVCES FOR PHASING OUT CFC-11 WITH HCFC-141B AT SIX COMPANIES AND PHASING OUT CFC-11 BY CONVERSION TO WATER BLOWN TECHNOLOGY AT ONE COMPANY (UMBRELLA PROJECT)

Between

China International Economic Consultants Co. Ltd.

And

China BCEL Engineering Co., Ltd.

Beijing

TERMS AND CONDITIONS OF CONTRACT

THIS CONTRACT is made between China International Economic Consultant Co., Ltd. (hereinafter referred to as CIEC), having its principal office located at 13/F Capital Mansion, 6 Xinyuan Nanlu, Chaoyang District, Beijing 100013, PR China and China BCEL Engineering Co., Ltd. (hereinafter referred to as the Contractor), having its principal office located at Baijiazhuang, Chaoyangmenwai, Chaoyang District, Beijing 100026, China.

WHEREAS, the EXECUTIVE COMMITTEE OF THE MULTILATERAL FUND FOR THE IMPLEMENTATION OF THE MONTREAL PROTOCOL (hereinafter referred to as the Executive Committee) and UNIDO, in response to a request from the Government of the People's Republic of China (hereinafter referred to as the Government), has agreed to assist the Government in carrying out the umbrella project entitled "Phasing Out CFC-11 With HCFC-141b at Six Companies and Phasing Out CFC-11 by Conversion to Water Blown Technology at One Company";

WHEREAS, UNIDO has concluded an agreement with the STATE ENVIRONMENTAL PROTECTION ADMINISTRATION OF CHINA (hereinafter referred to as SEPA), for the provision of services required to execute the umbrella project referred to hereinabove;

WHEREAS, SEPA has nominated the China International Economic Consultant Corporation (hereinafter referred to as CIEC), to act in the capacity of the Co-operating Implementation Agency of SEPA, wherefore all references in this Contract to CIEC shall be deemed to included SEPA;

WHEREAS, in this connection, CIEC, acting in agreement with SEPA, desires to engage the Contractor to provide a complete package of technical services and supply including: a) Local transportation and installation of the imported equipment; b) Training services and technical personnel for installation supervisions; c) Provision of trial materials for test run; d) Provision of technical services and documentation to complete the umbrella project in order to phase-out the use of CFC-11 in foam sector;

WHEREAS, the Contractor represents that he possesses the required technical knowledge, personnel and facilities for the purposes and that he is ready, willing and able to provide such a complete package necessary for completion of the project

NOW, THEREFORE, the parties hereto mutually agreed as follows:

Article 1 Definition

1.01 Unless the context requires otherwise, the following terms wherever used in this Contract shall have the following meanings:

(a) "Contract Grant" means a MLF grant used by SEPA/CIEC for Phasing Out CFC-11 With HCFC-141b at Six Companies and Phasing Out CFC-11 by Conversion to Water Blown Technology at One Company (Umbrella Project).

(b) "Contract Account" means the account opened at Chang'An Branch, Huaxia Bank by SEPA, to which the amount of the grant is credited.

(c) "Contract Project" means the project executed by the Contractor for provision of engineering service supply of equipment for 7 enterprises.

(d) "Contract" means this Contract and the relative Annexes including Terms of Reference, specifications and manuals, the Contractor's bidding document and such further documents as may be expressly incorporated in the Contract by the parties.

(e) "Terms of Reference" means detailed specification of the work under the Contract and any modification thereof or addition thereto agreed upon by SEPA/CIEC and the Contractor.

(f) "Technical Documentation" means all technical and technological documentation, and specifications, calculations, samples, patterns, models, operation and maintenance manuals and other technical information of a like nature submitted by the Contractor and approved by SEPA/CIEC.

(g) "Work" means the work to be executed in accordance with the Contract, including all labour, materials, equipment and services provided or to be provided by the Contract to fulfil the Contractor's obligations, and remedying of any defects therein.

(h) "Bid" means the Contractor's bid to SEPA/CIEC for the execution and completion of the Work and the remedying of any defects therein in accordance with the provisions of the Contract, as accepted by SEPA/CIEC.

(i) "Plant" means the existing machinery, apparatus, processes and the like for the production of equipment for the transportation refrigeration sector (hereinafter referred to as the Products) using CFC-11 installed at 7 enterprises.

(j) "Conversion" means changes in the Plant and its Products pursuant to the Contract necessary to replace CFC-11 in the Plant and its Products by HCFC-141b or water blown technology.

(k) "Equipment" means the newly imported equipment for production of equipment for the transportation refrigeration that has already procured under other contracts.

(l) "Site" means the place where the Plant is located, including the Plant, and any other places as may be specifically designated in the Contract as forming part of the Site.

(m) "Training" means training by the Contractor of the Project Beneficiary's staff/workers at the Contractor's premises and/or at the Site (On-site Training) in accordance with the Contract.

(n) "Technical Personnel" means Contractor's personnel assigned by the Contractor for the execution of the Work including, but not limited to, the supervision of the Conversion of the Plant at the Site pursuant to the Contract.

1.02 The parties agree that words and abbreviations, not specifically defined hereinabove, but which have well-known technical or trade meanings, are used in the Contract in accordance with such recoganized meanings.

Article 2 Aim of the Contract

2.01 The aim of the Contract is to convert the Plant in order to phase-out the use of CFC-11 at 7 enterprises by means of providing engineering services for phasing out CFC-11in manufacturing the transportation refrigeration equipment at 7 enterprises

Article 3 Responsibilities of the Contractor

3.01 Statement of Work and Supply

Given the aim of its Contract, the Contractor shall, on the terms and conditions hereinafter set forth:

(a) supply the Technical Documentation necessary for the Conversion of the Plant and operation and its Products. The Technical Documentation shall be in both the Chinese and English languages.

(b) provide the services at the Site of his Technical Personnel for a total duration of __4__ months for:

- Local transportation of imported equipment from Harbor to enterprises production premises.
- installation of the imported equipment in accordance with the Contract;
- equipment retrofitting
- Provision of trial materials;
- testing, commissioning and initial operation of the imported equipment;
- Training of the staff/workers of the Project Beneficiary. The training shall be related to equipment operation, maintenance and repair of the Converted Plant

In this connection, the Contractor's scope of work and supply shall be as generally detailed in, but not necessarily limited to:

(1) the SEPA/CIEC Terms of Reference dated July 23, 2003, which is attached hereto as Annex A.
(2) the Contractor's bid dated August, 2003.

Contractor's general responsibility includes all items necessary for the proper execution and completion of the Work. The Contractor shall carefully study the Contract and its Annexes as well as the Plant conditions. Where the Contractor observes errors, inconsistencies, omissions or ambiguities, he shall immediately in writing refer to SEPA/CIEC for SEPA/CIEC's written interpretation or correction. If the Contractor fails to notify SEPA/CIEC, the Contractor shall be deemed to have waived any claim relating to said error, discrepancy, omission or ambiguity, shall be deemed to have estimated the most expensive material or method of execution of the Work, and shall bear an appropriate amount attributable to the costs of correction.

If there are discrepancies or conflicts between or among the Contract and its Annexes, then the document to prevail shall be given precedence in the following order:

(1) Contract
(2) Annexes A, B, C, D, E
(3) Terms of Reference
(4) Contractor's bid

3.02 Commencement and Completion of the Work

(a) The Contractor shall commence the Work under the Contract dated September 25, 2003.
(b) The Contractor shall provide (as applicable) plans for the Imported Equipment installation and within __1__ month from the date of signature of the Contract. The Technical Documentation for Equipment installation shall be delivered within __1__ month from the date of signature of the Contract.
(c) The Contractor shall deliver the Equipment to each Plant upon arrival and customs clearance of the imported equipment within __7__ days upon completion of the customs clearance of the equipment.
(d) The Contractor shall complete the Work under the Contract no later than January 24, 2004.
(e) The Contractor recognizes that time is of the essence for performance of this Contract and that SEPA/CIEC and the Project Beneficiary will suffer damages if the Contractor does not substantially complete the Work at the time set forth in the Contract.

3.03 **Testing of the Equipment for Retrofitting supplied by the Contractor before Shipment**

(a) During the manufacturing and assembly of the Equipment at the Contractor's or his sub-contractors' and/or supplier's premises or works, SEPA/UNIDO shall have, at all reasonable times, the right to examine the same in such premises and to call for such tests of the materials and workmanship which, in the Parties' opinion, are usual and typical for the type of the Equipment connected. The cost of all such tests as described above shall be borne by the Contractor. Any other tests required by SEPA/CIEC shall be for the account of SEPA/CIEC. The cost of SEPA/CIEC's personnel in this connection shall be for the account of SEPA/CIEC.

(b) If SEPA/CIEC so request, the Contractor shall present sufficient documentary evidence that the materials used in the manufacture of the Equipment meet the specifications' requirements.

(c) SEPA/CIEC shall have the right to be present at tests carried out or arranged by the Contractor. If called by SEPA/CIEC, samples and specimens shall become SEPA/CIEC's property. The Contractor shall notify SEPA/CIEC of the progress of the manufacture of the Equipment so that such inspections or tests can be carried out as may be required to ascertain that the material and/or workmanship are in conformity with the requirements of this Contract.

(d) SEPA/CIEC shall, by giving notice to the Contractor setting out any objections which it may have in respect of any equipment inspected and/or tested, have the right to reject any such equipment which is not in accordance with the relevant specifications. In this event, the Contractor shall make good such defective equipment at his own cost and expense.

3.04 **Equipment Commissioning and Operation; Special Maintenance Tools, Consumable Materials**[1]

(a) Commissioning Spare Parts

The Contractor shall supply with the Equipment a quantity of spare parts sufficient for the initial commissioning of the Equipment.

(b) Normal Wear and Maintenance Spare Parts

(i) The Contractor shall supply with the Equipment a quantity of normal wear and maintenance spare parts sufficient for the first two (2) years of Equipment operation.

(ii) The Contractor shall, before shipment of the Equipment, submit the drawings of wear parts of the Contractor's proprietary equipment and the descriptions/catalogues of spare parts not manufactured by him.

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[1] The Parts and Equipment refers to the parts and equipment supplied and procured by the Contractor for equipment retrofitting, except for other footnote for defination.

(iii) The Contractor also undertakes that normal wear and spare parts, if required, shall continue to be available to the Project Beneficiary during the life of the Equipment at reasonable prices and terms.

(c) Special Maintenance Tools

The Contractor shall submit, before shipment of the Equipment, an itemized list of Special operation and maintenance tools which may be required for the operation of the Equipment. The Contractor also undertakes that operation and maintenance tools as may be required for the operation and maintenance of the Equipment shall be available to the Project Beneficiary during the life of the Equipment at reasonable prices and terms.

(d) Consumables[2]

The Contractor shall inform SEPA/CIEC of the specifications, including equivalent brand names, and quantities of all consumable materials, such as lubricants, flushing oils, hydraulic fluids and chemicals which, based on his experience, are required as initial filling during commissioning and Performance Tests and for normal yearly operation. This information shall be provided in time to enable the Project Beneficiary to plan timely procurement of these materials. SEPA/CIEC may, at its option, ask the Contractor to supply such materials as are required for the Equipment commissioning and Performance Tests and the Contractor shall undertake to supply the same at reasonable prices and terms.

3.05 Packing, Shipping and Insurance of the Equipment and Technical Documentation[3]

(a) The Contractor shall pack and mark the Equipment and the Technical Documentation before shipment in accordance with the normal international practice.

(b) Bills of Lading/Way Bills/ (for overseas Goods) and/or Cargo Receipt (for local goods) issued by transportation department evidencing the shipment of the Equipment and/or Technical Documentation shall quote the shipping marking, designation of contents and dimensions in metric units, itemized net weight of the contents and total gross weight of each package and shall show the each Plant as consignee.

(c) The Contractor shall, in respect of each dispatch/shipment of the Equipment and/or Technical Documentation, submit the following Shipping Documents:

(i) clean on-board ocean bill of lading/way bill/Cargo Receipt under sub-paragraph 3.05 (b) above;

(ii) complete set of insurance policy with SEPA/CIEC as beneficiary covering hundred and ten percent (110%) of the invoiced and

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[2] The "consumable" here is applicable to both imported and retrofitted equipment.

[3] Shipping terms are applicable to the imported parts and equipment for retrofitting and local transportaion terms are applicable to both imported equipment and parts and equipment for retrofitting.

delivered Equipment against all risks and war risk;

(iii) certificate of origin;

(iv) commercial invoice and

(v) packing list

(vi) quality and quantity certificates

Two (2) sets of shipping documents (including one (1) original set) shall be submitted to SEPA/CIEC and one set of original shipping documents to each beneficiary at least three (3) weeks in advance of the arrival of the Equipment at the Destination.

(d) The term "Delivery Duty Unpaid (DESTINATION)", wherever used in this Contract has the meaning and effect ascribed to it by "INCOTERMS 1990".

(e) The Contractor shall insure the Equipment and Technical Documentation and during their shipment and transit from the Supplier warehouse to the Plant sites for domestically procured equipment and the Chinese port to the Plant sites for imported equipment until the packing crates are opened in the presence of the Contractor's representative(s) against all risks of loss or damages from any cause and war risk. Such insurance shall be with a reputable insurance company acceptable to SEPA/CIEC and shall be in the names of the Contractor and SEPA/CIEC in their respective rights and interests. Any insurance moneys payable shall be paid to SEPA/CIEC who shall apply the same according to this Contract and the Parties' respective rights hereunder. The insurance shall cover the full price of the Equipment and Technical Documentation Delivery Duty Unpaid (DESTINATION) plus ten percent (10) and shall be in the currency of the Contract Price.

(f) Storage of the Equipment and Technical Documentation on arrival at the Site is the responsibility of the Project Beneficiary under paragraph 4.01.

(g) In the event of loss of or damage to any of the Equipment and/or Technical Documentation during shipment or during transit or storage or in the event of the Equipment and/or Technical Documentation being found, upon the opening of the packing crates at the Site in the presence of the Contractor's representative(s), to be otherwise defective, unusable or ineffective for the purpose for which it (they) was (were) supplied, the Contractor shall promptly replace or repair such Equipment and/or Technical Documentation, by whatever means of transport or personnel services are most suitable and reasonable in the circumstances.

In the case of loss or damage which is covered by the insurance under sub-paragraph (e) above, the amount paid by the insurance company shall be made available by SEPA/CIEC towards the cost of replacement and/or repair.

3.06 Review of the Site Conditions

The Contractor shall visit the Site and ascertain all conditions and information pertaining to his work.

By executing the Contract, the Contractor represents that he has examined the Site, determined its physical characteristics and correlated his personal observations with the requirements of the Contact, including but not limited to:

(i) the conditions of all structures and obstructions thereon, both natural and man-made, and the surface water conditions of the Site;
(ii) the nature, location, and character of the general area in which the Site is located, including its climatic conditions, available labor and equipment supply;
(iii) the quantity and quality of all materials, supplies, tools, equipment, labor, and professional services necessary to complete the Work in the manner required by the Contract Documents; and
(iv) all pertaining national laws, rules, ordinances, and regulations

No claim on the part of the Contractor attributable to the non-fulfillment of the above shall be entertained.

3.07 Contractor's Technical Personnel

(a) The Contractor shall, through the Technical Personnel to be provided under sub-paragraph 3.01 (b), be responsible for supervising the Conversion of the Plant pursuant to the Contract, including installation of the Equipment, testing and commissioning of the Converted Plant as well as its initial operation after its start-up.

(b) Name, Project Function and Duration of the Assignments of the Contractor's Key Technical Personnel
The Key Technical Personnel to be provided by the Contractor and the duration of their assignments shall be as follows:

		Duration of Assignment
Name	**Project Function**	**Project Area**
Liu Xiaozhu	Senior engineer	Process
Gong Xiangrui	Senior engineer	Mechanical
Kan Shaoxian	Senior engineer	General Drawing
Ji Lianfu	Senior engineer	Civil Architecture
Jiang Zhongfa	Senior engineer	Structure
Chen Yongmei	Senior engineer	Drainage
Yan Hong	Senior engineer	Electricity
Huang Rongsen	Senior engineer	Instrument
Wang Yaoli	Senior engineer	HVAC
Hu Yongyan	Senior Economist	Budget

(c) Replacement of the Contractor's Key Technical Personnel
The Contractor's Key Technical Personnel named in sub-paragraph 3.07 (b) hereinbefore are considered essential for the work to be performed under this Contract, accordingly:
(i) prior to replacing any of such personnel, the Contractor shall notify SEPA/CIEC reasonably in advance and shall submit detailed justifications together with the curriculum vitae of the proposed substitute(s) to permit evaluation by SEPA/CIEC of the impact which such replacement(s) would have on the work program;
(ii) no Key Technical Personnel replacement shall be made by the Contractor without the prior written consent of SEPA/CIEC in accordance with this Contract.

(d) Duration of Stay of Contractor's Technical Personnel
The Contractor's Technical Personnel shall arrive at the Site at the appropriate time or times for the installation and commissioning work. They shall be at the Site for four (4) months or for such longer period(s) as the Contractor may reasonably need in order to achieve the warranted performance of the Converted Plant and thereby avoid the application of the stipulations of sub-paragraph 3.10 (b) hereof. Any extension of the time for achieving the performance warranty beyond one (1) months shall require SEPA/CIEC's acceptance.

(e) Work Program
The timings and work program for the stay of the Contractor's Technical Personnel at the Site shall be as agreed upon between SEPA/CIEC, the Project Beneficiary and the Contractor.

(f) On-the-Job-Training
During their stay at the Site, the Contractor's Technical Personnel shall provide On-the-Job-Training for Project Beneficiary's personnel in the maintenance, repair and operation of the Converted Plant. The program for this On-the-Job-Training shall be as agreed upon between SEPA/CIEC, the Project Beneficiary and the Contractor.

3.08 Performance Warranty

The Contractor warrants that, after satisfactory completion of the Conversion of the Plant, the Converted Plant shall meet the specifications and requirements set forth in the Terms of Reference attached to this Contract, in the Contractor's bid and in the Technical Documentation.

3.09 Performance Tests

(a) Conformity of the Converted Plant with the stipulations of paragraph 3.08 shall be established by Performance Tests conducted under the supervision and control of the Contractor in accordance with the stipulations in the Terms of Reference and the program of the Performance Tests which shall be agreed upon by SEPA/CIEC, the

Project Beneficiary and the Contractor two (2) months prior to completion of Equipment installation at the Site.

(b) The Project Beneficiary shall be responsible for providing for the purpose of the said Tests, the necessary auxiliary materials, utilities, manpower and other requisites as required by paragraph 4.01.

(c) In case the technical parameters referred to in the Terms of Reference are not achieved, then the Performance Tests may, subject to sub-paragraph 3.10 (b), be continued for the additional time needed to achieve the parameters required.

(d) Conformity of the Converted Plant with the requirements of paragraph 3.08 shall be established by measurements conducted jointly by the Contractor, SEPA/CIEC and the Project Beneficiary at agreed appropriate stages of the Performance Tests as defined in the Terms of Reference and the program of the Performance Tests referred to sub-paragraph (a) hereinabove.

(e) The results of the trials and test runs successfully conducted under this paragraph, together with a statement indicating whether or not the Converted Plant was proven in the performance tests to have achieved the requirements in the Terms of Reference and sub-paragraph (a) above, shall be certified by the authorized representatives of the Contractor, SEPA/CIEC and the Project Beneficiary in the Certificate of Acceptance. The Certificate of Acceptance shall be appended to the Commissioning Report under sub-paragraph 3.22 (c).

3.10 Failure to achieve Performance Warranty Parameters-Remedial Measures/Compensation

(a) If the performance warranted under paragraph 3.08 in not reached in the performance tests conducted under paragraph 3.09, then (unless the failure is due to factors outside the responsibility of the Contractor) the Contractor shall, at his own cost and expense, correct, modify or change any faulty engineering performed by him and shall, either by repair or replacement, correct, modify or change any faulty machinery and equipment supplied by him to the extent necessary for the purpose of achieving the above warranted performance. After execution of these corrections, modifications, changes, repairs and/or replacements, which shall be carried out by the Contractor without delay, a new set of Performance Tests shall be carried out in conformity with paragraph 3.09.

(b) If any failure under paragraph 3.09 or 3.10 (a) to meet the stipulations of paragraph 3.08 cannot be rectified by remedial measures and eliminated in further tests within the period (including extended period) of the Contractor's technical assistance under sub-paragraph 3.07 (d) then, unless an extension of time is agreed under sub-paragraph 3.07 (d), SEPA/CIEC may hold the Contractor in default under paragraph 10.05.

3.11 Mechanical Warranty

The Contractor warrants that the Equipment, components, tools and spare parts supplied by him, his sub-contractor(s) and/or suppliers under this Contract shall be brand new and free from defects in workmanship, materials and design. The Contractor shall repair or replace at his own expense and as soon as practicable any of the Equipment, components, tools or spare parts which within a period of twelve (12) months from the date of the Certificate of Acceptance as per sub-paragraph 3.09 (e) prove to be defective as mentioned above or as a result of any erroneous or inadequate engineering drawings technical specifications and /or operating instructions of the Contractor.

Damage caused by improper operation contrary to the Contractor's instructions or by negligence or lack of proper maintenance on the part of the Project Beneficiary shall not be covered by this warranty. The warranty shall be deemed modified to the extent of any modifications to the Equipment and/or its working conditions made without authorization by the Contractor.

3.12 Correction of Defective Work

(a) If, within one year after the date of the Certificate of Acceptance, or under the terms of an applicable special warranty required by the Contract, any of the Work is found to be defective or non-conforming to the Contract, the Contractor shall correct it as soon as practicable after receipt of written notice from SEPA/CIEC to do so. This obligation shall survive acceptance of the Work under the Contract and termination of the Contract.

(b) Noting contained in this paragraph 3.12 shall be construed to establish a period of limitation with respect to any other obligation which the /contractor might have under the Contract. The establishment of the time period of one year after the date of the completion of the Work or other dates or such longer period of time as may be prescribed by law or by the terms of any warranty required the Contract relates only to the specific obligations of the Contractor to correct the Work, and has no relationship to the time within which his obligation to comply with the Contract may be sought to be enforced, nor to the time within which proceedings may be commenced to establish the Contractor's liability with respect to his obligations other than specifically to correct the Work.

3.13 Modification of the Equipment

The Contractor reserves the right, during the design, installation, start-up and testing of the Converted Plant, to modify, in consultation with SEPA/CIEC and the Project Beneficiary, the Equipment to ensure the fulfillment of the Contractor's obligations.

3.14 Delays and Extension of Time

(a) If the Contractor is delayed at any time in the progress of the Work by any act or omission of SEPA/CIEC or the Project Beneficiary, or by any employee of either, or by any separate contractor employed by the Project Beneficiary, or by changes ordered in Work, or any causes beyond the Contractor's reasonable control, or by any other cause which SEPA/CIEC determines may justify the delay, then the Time for Completion shall be extended by an amendment to the Contract for such reasonable time as SEPA/CIEC may determine.

(b) Any claim for extension of the Time for Completion shall be made in writing to SEPA/CIEC not more than twenty days (20) after the commencement of the delay; otherwise said claim shall be deemed to be waived. The Contractor shall provide an estimate of the probable effect of such delay on the progress of the Work at the same time he serves notice of the delay.

3.15 Permits, Fees, Notices and Legal Requirements

(a) Unless otherwise provided in the Contract, the Contractor shall secure and pay for all the permits and governmental fees, licenses and inspections necessary for the proper execution and completion of the Work, which are customarily secured after execution of the Contract and which are legally required at the time Contractor's bid is received.

(b) The Contractor shall give all notices and comply with all laws, ordinances, rules, regulations and lawful orders of any public authority bearing on the performance of the Work.

(c) If the Contractor observes that the Work required under the Contract is not in accordance with applicable laws, statutes, building codes and regulations, he shall promptly notify SEPA/CIEC in writing.

3.16 Protection of Persons and Property

(a) The Contractor shall be responsible for initiating, maintaining and supervising all safety precautions and programs in connection with the Work.

(b) The Contractor shall take all reasonable precautions for the safety of , and shall provide all reasonable protection to prevent damage, injury or loss to:

(i) all employees at the Site and all other persons who may be affected thereby;

(ii) all the Work and all materials and equipment to be incorporated therein, whether in storage on or off the Site, under the care, custody or control of the Contractor or any of his subcontractor(s); and

(iii) other property at the Site or adjacent thereto.

(c) The Contractor shall give all notices and comply with applicable law, ordinances, building codes, rules, regulations and lawful orders of any

public authority bearing on the safety of persons or property or their protection from damage, injury or loss.

(d) The Contractor shall erect and maintain, as required by existing conditions and progress of the Work, all reasonable safeguards for safety and protection, including posting danger signs and other warnings against hazards, promulgating safety regulations and notifying the Project Beneficiary's personnel.

(e) When the use or storage of combustible, explosive or other hazardous materials or equipment is necessary for the execution of the Work, the Contractor shall exercise the utmost care and shall carry on such activities under the supervision of property qualified personnel.

(f) The Contractor shall promptly remedy all damage or loss to any property referred to in sub-paragraph 3.16 (b) caused in whole or in part by the Contractor, any sub-contractor, or anyone directly or indirectly employed by any of them, or by anyone for whose acts any of them may be liable and for which the Contractor is responsible under sub-paragraph 3.16 (b), except damage or loss attributable to the acts or omissions of the Project Beneficiary or anyone directly or indirectly employed by him, or by anyone for whose acts the Project Beneficiary may be liable, and not attributable to the fault or negligence of the Contractor.

(g) The Contractor shall designate a responsible member of his Team, whose duty shall be the prevention of accidents at the Site during the execution of the Work. This person shall be the Contractor's Team Leader unless otherwise designated by the Contractor in writing to SEPA/CIEC.

(h) The Contractor shall not load any systems or equipment or permit any part of the Work to be loaded, so as to endanger safety of the operation.

(i) In any emergency affecting the safety of persons or property, the Contractor shall act, at his discretion, to prevent threatened damage, injury or loss.

3.17 Other Facilities and Services to be Provided by the Contractor

Except as otherwise stipulated in this Contract, the Contractor shall provide all the facilities and services required by his personnel for the execution of this Contract. Expenses of every kind incurred in connection with such personnel shall be solely for the account of the Contractor. Such expenses shall include, but shall not be limited to, the cost of wages, housing, food, travel, medical attention and personnel insurance.

3.18 Standards of Work

The Contractor shall furnish the highest skill and judgement and co-operate with SEPA/CIEC and the Project Beneficiary and all SEPA/CIEC's consultants and agents in best furthering the interests of SEPA/CIEC and the Project Beneficiary. The Contractor shall furnish efficient business

administration and superintendence, and he shall perform the Work in the best way and in the most expeditious and economical manner consistent with the interests of SEPA./CIEC and the Project Beneficiary.

3.19 Relationship between the Contractor's Team Leader and SEPA/CIEC's Engaged Consultants

The Contractor's Team Leader shall maintain a close and continuing relationship with SEPA/CIEC's engaged consultants and/or his designated representative(s), and shall co-operation with him (them) in the performance of the work hereunder and shall keep him/them currently informed of the progress of the assignment and plans for the performance of the work. SEPA/CIEC's engaged consultants and/or his designated representative(s) shall have the right to observe at any time the progress of the work carried out under this Contract and to consult with the Contractor's Team Leader and the other specialists concerning their work performance.

3.20 Briefing and Debriefing

The Contractor's Team Leader shall be available at SEPA/CIEC's office for two (2) days' briefing before his first visit to the Project Area, and for three (3) days debriefing after completion of the Work in the Project Area and to review the Contractor's Commissioning Report submitted under sub-paragraph 3.23 (c).

3.21 Training

The Training of the Project Beneficiary's personnel as provided in the Terms of Reference shall be arranged by the Contractor. The Contractor shall guarantee that the Project Beneficiary's personnel shall grasp the proper knowledge of correct operation of the equipment. The Training shall be conducted at the suitable place and time agreed between the Contractor, SEPA/CIEC and the Project Beneficiary.

3.22 Reports

The Contractor shall submit Progress reports, Final Report, Post Contract Services Reports and their Annexes to SEPA/CIEC as required in the TOR in both the English and Chinese languages.

(a) Progress Report I & II

Narrative Progress Reports, in five (5) copies, summarizing the status of the Contract work and the progress made, with submission of all the requested annexes and supporting documents.

Commissioning Report

A Commissioning Report, in five (5) copies, covering all the work performed under the Contract up to the commissioning and the

successful Performance Tests of the Converted Plant, which shall be submitted to SEPA/CIEC, not later than four (4) weeks thereafter, together with the certified results and the Certificate of Acceptance.

Training Report

Upon the completion of the Training under paragraph 3.21, a report on the training program and achievement of each trainee.

Final Report

A Final Report, in five (5) copies, covering the work performed at the Site after the Converted Plant commissioning. This Report shall be submitted within 15 days after acceptance by SEPA/CIEC of the Commissioning Report.

(b) Post Contract Service Report I & II

In five (5) copies, summarizing the periodical visits paid to the enterprises and services provided after contract and providing service certificate signed and dated by the enterprises.

Article 4 Responsibilities of SEPA/CIEC and the Project Beneficiary

4.01 SEPA/CIEC has entered into this Contract with the Contractor on the basis of the Project Beneficiary undertaking to provide certain services and facilities, which are confirmed by the Project Beneficiary in writing. In particular, the Project Beneficiary have undertaken to provide, at no cost to the Contractor, the following services and facilities:

(a) Civil Works

The foundation for the Converted Plant machinery and equipment and all necessary earth and other preparatory work to the site, including taking levels (topoaltimetric) and soil testing (geotechnical) survey.

(b) Storage and Security

Facilities for the corrosion-proof and safe storage of the Equipment as it arrives at the Site pending the completion of the Converted Plant.

(c) Site Outfit

The necessary Site outfit with hoisting equipment and other requisite implements, tools and scaffolds. The site outfit shall also comprise furnished office rooms fitted with locks and equipped with washing, sanitary and other facilities for the Contractor's personnel. The Contractor shall provide, in advance, the list of tools and equipment to be provided by the Project Beneficiary.

(d) Auxiliaries and Materials

All utilities and auxiliaries necessary for testing and other work such as water, electric power and lighting, electro and oxyacetylene welding equipment and material, compressed air, steam, fuels, cleaning materials, lubricants, illumination of working places, the necessary connections of

the services to the working places within battery limits (which shall not be more than 10 meters distant from any point therewithin) and operating supplies needed for commissioning and Performance Tests. In this connection, the Contractor shall proved to SEPA/CIEC a detailed list of the requirements, within two (2) months from the date thereof.

(e) Personnel for Installation, Commissioning and Operation
All the personnel for the installation of the Equipment and commissioning of the Converted Plant, in adequate number and of appropriate skills, to ensure the proper and timely performance of the Work. All the personnel required for normal operation of the Converted Plant. The Contractor shall specify, within three (3) months from the date hereof, the numbers and categories of personnel required.

(f) Communication and Office Services
Necessary office facilities, secretarial services and local telephone services

(g) General Assistance
All reasonable assistance for making the stay of the Contractor's personnel at the Site comfortable.

(h) Plant Site Conditions
The Site which shall be in such a condition as to permit the Contractor's personnel to work without danger and impediment.

(j) Safety Measures
All necessary safety precautions against accidents, required by law or otherwise, and explicit information to the Contractor's personnel about any local rules and regulations that have to be observed. Medical first aid including medicines shall be available on the Site.

4.02 Responsibilities of SEPA/CIEC's Engaged Consultants

SEPA/CIEC's engaged consultants for this Project, as the representative of SEPA/CIEC, shall:

(a) act as Liaison Officer between the Contractor's personnel and officials of SEPA/CIEC in all matters relating to this Contract;

(b) inform SEPA/CIEC, confirming the arrival in and departure from the Project Area of the Contractor's personnel;

(c) refer to SEPA/CIEC, such administrative matters relating to execution of this Contract as may be brought to his attention and which cannot be resolved in the Project Area.

Article 5 Contract Price and Terms of Payment

5.01 Contract Price

SEPA/CIEC shall pay the Contractor, for the full and proper performance of his obligations under this Contract, the sum of RMB 1,317,000 (Say

Renminbi Yuan one million three hundred and seventeen thousand only). This sum shall cover all expenses incurred by the Contractor including, but not limited to the cost of the Equipment delivered, the complete engineering and technical services and Technical Documentation, the remuneration of the Contractor's personnel and all other compensations, insurance and social charges as well as his overheads, technical assistance and supervision costs. It also shall cover the costs in connection with the travels of the Contractor's Technical Personnel from their residence and/or place of work to the Site and return, and their subsistence in the Project Area.

5.02 Contract Ceiling

The Contractor shall not do any work, provide any materials or equipment, or perform any services which may result in any charges to SEPA/CIEC over and above the said sum of RMB 1,317,000 (Say Renminbi Yuan one million three hundred and seventeen thousand only) without the prior written consent of SEPA/CIEC and a formal amendment to this Contract.

5.03 Exclusion or Escalation

The Contract price set forth in paragraph 5.01 is fixed and firm and not subject to escalation.

5.04 Currency of Payment

The total Contract price of RMB 1,317,000 (Say Renminbi Yuan one million three hundred and seventeen thousand only) shall be paid in this currency.

5.05 Progress Reports and Payments

Progress payments on account of the Contract price set forth in paragraph 5.01 shall be made in accordance with the following schedule:

(a) upon signing of the Contract by both Parties and receipt by SEPA/CIEC of performance bank guarantee mentioned in paragraph 5.06, 10% of the contract price, namely the sum of RMB131,700 (Renminbi Yuan one hundred and thirty one thousand seven hundred only) as down payment.

(b) upon SEPA/CIEC's review and acceptance of Progress Report I as per activity 1.10 of TOR, 30% of the contract price, namely, the sum of RMB395,100 (Say Renminbi Yuan three hundred and ninety five thousand one hundred only).

(c) upon SEPA/CIEC's review and acceptance of Progress Report II as per activity 2.8 of TOR, 30% of the contract price, namely, the sum of RMB395,100 (Say Renminbi Yuan three hundred and ninety five thousand one hundred only).

(f) upon SEPA/CIEC's review and acceptance of the Contractor's Final Report per activity 3.7, 20% of the contract price, namely, the sum of

RMB 263,400 (say Renminbi Yuan two hundred and sixty three thousand four hundred only).

(g) Upon SEPA/CIEC's review and acceptance of the Contractor's Post Contract Service Report I as per activity 4.1, 5% of the contract price, namely, the sum of RMB 65,850 (say Renminbi Yuan sixty five thousand eight hundred and fifty only).

(h) Upon SEPA/CIEC's review and acceptance of the Contractor's Post Contract Service Report II as per activity 4.2, 5% of the contract price, namely, the sum of RMB 65,850 (say Renminbi Yuan sixty five thousand eight hundred and fifty only).

Grand Total: RMB 1,317,000 (Say Renminbi Yuan one million three hundred and seventeen thousand only)

Pro rata payments may be made under item (c) above, in respect of successive orders. Any amount not claimed under one item above may be claimed under a succeeding item.

The making of any payment hereunder by SEPA/CIEC shall not be construed as an unconditional acceptance by SEPA/CIEC of the work accomplished, or the equipment or technical documentation delivered by the Contractor up to the time of such payment.

5.06 Performance Bank Guarantee

The Contractor shall, together with the countersigned Contract submit to SEPA/CIEC a performance bank guarantee issued by a bank or insurance company approved by SEPA/CIEC, for the sum of ten (10) percent of total Contract Price. The performance bank guarantee shall secure proper and faithful performance by Contractor of his obligations under the Contract and shall be in the form set out in the Attachment to the Contract. The guarantee shall become effective upon SEPA/CIEC's receipt of that guarantee and shall remain in full force and effect until the date calculated as the date of the Certificate of Acceptance of the Work under the Contract plus twelve (12) months.

5.07 Withholding of Payments

SEPA/CIEC may withhold any payment to the Contractor or, on account of subsequently discovered evidence, nullify the whole or part of any payment approval theretofore given, to such an extent as may be necessary to protect SEPA/CIEC, and/or the Project Beneficiary from loss under this Contract on account of:

(a) the Contractor's failure to carry out the work or to make adequate progress on the work, except for failure arising out of force majeure:

(b) the Contractor's failure to remedy defective work and/or unsatisfactory performance, when such failure has been drawn to his attention by SEPA/CIEC;
(c) the Contractor's failure to submit the reports required under paragraph 3.21;
(d) the Contractor's failure to pay properly to sub-contractor(s) and for material, labor and equipment;
(e) the existence of damage claims presented by SEPA/CIEC or of reasonable evidence indicating the probable basis on which damage claims may be presented by SEPA/CIEC;
(f) breach by the Contractor of the Contract.

The withholding by SEPA/CIEC of any interim payment shall not affect the Contractor's obligation to continue performance under this Contract.

No interest shall accrue on payments eventually withheld by SEPA/CIEC in application of the stipulations of this paragraph.

5.08 Submission of Invoices

Each payment shall be made on the basis of an invoice submitted by the Contractor.

5.09 Mode of Payment

All payment under this Contract shall be made by SEPA/CIEC by bank transfer to the following bank account of the Contractor:

Account of China BCEL Engineering Co., Ltd.
Account Number: 1184406210001
Bank Name: Dongsanhuan Branch, China Merchants Bank
Address: 1, Dongsanhuan Beilu, Chaoyang District, Beijing.

Article 6 Penalties

6.01 In case the Contractor, for reasons attributable to him, does not comply with the dates/time limits stipulated in paragraph 3.02 of the Contract regarding performance and delivery, the Contractor is obliged to pay as compensation for any delay the penalty which shall be deducted by SEPA/CIEC from the sums due to be paid to the Contractor in accordance with sub-paragraph 5.05 (g) of the Contract. However, the penalty shall not exceed ten percent (10%) of the total Contract Price. The rate of penalty is charged at one percent (1%) of the Contract price for every seven (7) calendar days, odd days less than seven (7) calendar days are counted as one (1) week. In case the delay due to Contractor's reasons is ten (10) weeks later than the stipulated time schedule, SEPA/CIEC shall have the right to terminate the Contract in accordance with

the provisions of paragraph 10.05 herebelow.

Article 7 Contractor's Claims and Remedy

7.01 In no event shall the Contractor make any claim against SEPA/CIEC for or be entitled to additional costs or compensation resulting from any delays in progress or completion of the Work or any portion thereof, whether caused by the acts or omissions of SEPA/CIEC or Project Beneficiary, including but not limited to damages related to overhead, loss of productivity, acceleration delay, total costs and inefficiency. The Contractor's sole remedy in such event shall be an extension of the Time for Completion, provided the Contractor otherwise meets the requirements and conditions set forth in paragraph 3.02.

Article 8 Confidentiality

8.01 **Confidential and Proprietary Information**

Either Party acknowledges that all knowledge and information concerning the other Party that may be required in connection with the performance of its obligations under this Contract, including, but not limited to, any information relating to its operations and procedures, are confidential and proprietary information of the other Party and it shall received such confidential and proprietary information in confidence and shall not disclose or permit disclosure of any such knowledge or information to any persons, firm or corporation without the prior written consent of the other Party. Each set of documents containing such information shall be plainly marked so as to indicate the secret and confidential nature thereof.

Either Party shall not, without the prior written consent of the other Party, disclose, furnish or use, in any way whatsoever, and shall take all lawful measures available to prevent any other person and/or entity employed by it or within its control from so disclosing, furnishing or using any confidential or proprietary information of the other Party to which it becomes privy, regardless of whether same was generated pursuant to his Contract. Either Party shall use its best efforts and take all reasonable steps necessary, including the execution of a confidentiality and non-disclosure agreement by its employees, agents, beneficiaries and subcontractors to ensure that its employees, agents, beneficiaries and subcontractors fully comply with this paragraph 8.01.

8.02 **Liability for Disclosure**

Either Party shall be liable for any disclosure of confidential or proprietary information in breach of sub-paragraph 8.01 by its director, officers, agents, beneficiaries, employees or subcontractors. Either Party acknowledges that

any breach or threatened breach of subparagraph 8.01 could cause irreparable injury to the other Party within a short period of time entitling the other Party to preliminary injunctive relief against any such action, which relief shall be in addition to and in no way in limitation of any other remedies to which the other Party may be entitled.

8.03 Exclusions

The restrictions referred to in paragraph 8.01 shall not apply to the information which:

(a) presently is in the public domain;
(b) hereafter becomes part of the public domain without the other Party's fault;
(c) was in the possession of the other Party at the time of disclosure, as shown by written evidence;
(d) is disclosed to the other Party at any time hereafter by a third Party.

Article 9 Insurance

9.01 Insurance of Equipment and Technical Documentation

The Contractor shall, without limiting his or SEPA/CIEC's obligations and responsibilities under the Contract, insure with an insurance company acceptable to SEPA/CIEC:

(a) the Equipment and Technical Documentation to be incorporated in the Plant, at the full replacement cost and
(b) for an additional sum of fifteen (15) percent of such replacement cost to cover any additional costs of and incidental to the rectification of loss or damage including professional fees and the cost of demolishing and removing any part of the Equipment and of removing debris of whatsoever nature.
(c) The insurance referred to in sub-paragraph 9.01 (a) and (b) shall be in the joint names of the Contractor and SEPA/CIEC and in favor of SEPA/CIEC as beneficiary covering hundred and fifteen percent (115%) of the invoiced value against all risk and war risk. It shall also cover SEPA/CIEC and the Contractor against all loss or damage from whatsoever cause arising from the start of the work at the Site until the date of final payment.

9.02 Liability Insurance

The Contractor shall provide and maintain insurance for an appropriate amount, no less than the local requirement against public or third party liabilities for bodily injury or death or property damage arising from any operations carried out by the Contractor in order to comply with his

obligations under this Contract.

9.03 Certificates of Insurance

One (1) original and two (2) copies of the certificates of insurance, referred to in sub-paragraph 9.01 (a) and (b), shall be filed with SEPA/CIEC prior to commencement of the Work. The certificates shall be executed by an authorized representative of the insurer. These certificates and the insurance policies required by this paragraph 9.03 may not be cancelled or allowed to expire until at least 30 days' prior written notice has been given to SEPA/CIEC. Information concerning reduction of coverage shall be promptly furnished by the Contractor to SEPA/CIEC.

9.04 Responsibility for Amounts not Recovered

Any amounts not insured or recovered from the insurers shall be borne by the Contractor.

9.05 Remedies against Contractor's Failure to Insure

If the Contractor fails to effect and keep in force any of the insurance required under the Contract, including failure to insure for the appropriate amount, or fails to provide certificates of insurance to SEPA/CIEC in accordance with paragraph 9.03 above, then and in any such case SEPA/CIEC may, at its option, hold Contractor in default in accordance with paragraph 10.06 hereinbelow, or effect and keep in force any such insurance and pay any premium as may be necessary for the purpose and from time to time deduct the amount so paid from any monies due to the Contractor, or recover the same as a debt due from the Contractor.

Article 10 General Provisions

10.01 Entry into Effect of the Contract

This Contract shall become effective upon the signing hereof by both Parties and the Contractor's submission of Performance Bank Guarantee.

10.02 The parties hereto agree to be bound by the General Conditions of Contract which are attached hereto as Annex A

10.03 Notices

Any notice given by either of the Parties hereunder shall be in writing.

10.04 Transmission of Notices, Invoices, Reports and other Documents

Unless otherwise stipulated in this Contract, instructions, manuals, reports, invoices, notice and shipping documents required to be submitted by the Contractor shall be addressed to SEPA/CIEC, 13/F Capital Mansion, 6 Xinyuan Nanlu, Chaoyang District, Beijing 100013, PR China

10.05 Covenant against Contingent Fees

The Contractor warrants that:

(a) no person or selling agency has been employed or retained by him to solicit or secure this Contract upon an agreement or understanding for a commission, percentage, brokerage, contingent fee or retainer, except regular employees or bona fide and officially established commercial or selling agencies maintained by the Contractor for the purpose of securing business;

(b) no official or servant or retired employee of SEPA/CIEC, the participating and Executing Agencies of this project and/or its co-operating Agency(ies), who is not a regular employee of the Contractor, has been or shall be admitted by the Contractor to any direct or indirect benefit arising from this Contract or the award thereof.

For breach of these warranties, SEPA/CIEC shall have the right to deduct from the Contractor price, or otherwise recover from the Contractor, the full amount of any such commission, percentage, brokerage, contingent fee or retainer so paid.

10.06 Default by the Contractor

In case the Contractor fails to fulfil his obligations and responsibilities under this Contract, and provided the Contractor has not remedied such failure(s) within thirty (30) days of having been given SEPA/CIEC's express written notification of the nature of the failure(s), SEPA/CIEC may, at its sole option and without prejudice to its right to withhold payments as hereinbefore provided, hold the Contractor in default under this Contract. When the Contractor is thus in default, SEPA/CIEC may, by giving written notice to the Contractor, terminate the Contract as a whole or such part or parts thereof in respect of which the Contractor is in default. Upon such notice, SEPA/CIEC shall have the right to seek completion, at the Contractor's expense, of that part or those parts of the Contract with respect to which the Contractor is in default. The Contractor shall, in this case, be solely responsible for any reasonable costs of completion, including such costs which are incurred by SEPA/CIEC over and above the originally agreed Contract price stipulated hereinbefore.

10.07 Temporary Suspension of Work

SEPA/CIEC may, at any time, temporarily stop the work being performed by the Contractor under this Contract by giving notice in writing to the Contractor. All work so stopped shall be resumed by the Contractor on the basis of a revised time schedule and on terms and conditions to be mutually agreed upon between the Parties.

10.08 Protests

If the Contractor considers any work demanded of him by the Project Beneficiary and/or SEPA/CIEC's engaged consultants to be outside the requirements of this Contract or considers any ruling of the Project Beneficiary and/or SEPA/CIEC's engaged consultants to be unfair or contradicting the stipulations of this Contract, he shall immediately upon such work being demanded, or such ruling being made, as SEPA/CIEC for written instruction or decision.

10.09 Transfer of Rights and Responsibilities from SEPA/CIEC to Project Beneficiary

The Contractor is aware that the title to the Equipment and Technical Documentation will be transferred by SEPA/CIEC to Project Beneficiary within one (1) month from the date of the Certificate of Acceptance and accepts that, from such time, all related rights and responsibilities of SEPA/CIEC shall pass to the Project Beneficiary.

10.10 Contract Amendment

No modification of, or change in, this Contract, or waiver of any of its provisions, or additional contractual relationship with the Contractor shall be valid unless approved in the form of a written amendment to this Contract, signed by a fully empowered representative of the Contractor and the representative of SEPA/CIEC.

10.11 No Contractual Relationship between Contractor and Project Beneficiary

Nothing contained in the Contract shall create any contractual relationship between the Project Beneficiary and the Contractor.

IN WITNESS WHEREOF, the Parties hereto have executed this Contract.

SEPA/CIEC

By _____

Date: 2003. 9. 25

China BCEC Engineering Co., Ltd.

By _____

Date: 2003. 9. 25.

Attachment 5

Destruction Certificate for Xinyang (By Local EPB)

设备销毁报告

项目单位名称	沈阳新阳汽车改装厂			
销毁报告编号	001	设备销毁时间	2004 年 2 月 27 日	
设备销毁地点	厂房门前			
主要参加销毁人数	姓名（签字）	职务	单位名称	
	方宁	科员	沈阳市皇姑区环保局监督管理科	
	刘承孝	付经理	沈阳新阳汽车改装厂	
	王佳宾	机电员	沈阳新阳汽车改装厂	
	于占武	总调度	沈阳新阳汽车改装厂	
	康小伟	技术员	沈阳新阳汽车改装厂	
销毁设备明细	设备名称	规格型号	照片编号	
	喷涂机	9Kg/min		
附件	附件 1　公证机关出具的公证书（适用于公证部门监督销毁过程） 附件 2　销毁过程照片（照片＿＿张，编号＿＿＿＿＿＿　至　＿＿＿＿＿） 附件 3　销毁过程录像（在第＿＿号光盘） 附件 4　废钢铁回收证明			
公章	签署项目合同企业公章	地方环保局公章 （适用于地方环保局监督销毁过程）		

Destruction Certificate for Yinxian

设备销毁报告 (By Local EPB)

项目单位名称	宁波市鄞州汽车内饰件厂		
销毁报告编号		设备销毁时间	2004 年 2 月 27 日
设备销毁地点	浙江省宁波市鄞州区姜山镇芸江村		

主要参加销毁人员	姓名（签字）	职务	单位名称
	金国红	科长	宁波市鄞州区环境保护局
	陈舜文	付厂长	鄞州汽车内饰件厂
	任惠强	付厂长	〃 〃 〃 〃 〃 〃 〃
	任云伟	工人	〃 〃 〃 〃 〃 〃 〃
	邹美珍	记录员	〃 〃 〃 〃 〃 〃 〃

销毁设备明细	设备名称	规格型号	照片编号
	气动式发泡机	自制	13
	空压机		17－18
	搅拌机	自制	10－11－23

附件

附件 1 公证机关出具的公证书（适用于公证部门监督销毁过程）

附件 2 销毁过程照片（照片 51 张，编号 1 至 51 ）

附件 3 销毁过程录像（在第___号光盘）

附件 4 废钢铁回收证明

公章

签署项目合同企业公章 [stamp: 宁波市鄞州汽车内饰件厂 3302273]

地方环保局公章（适用于地方环保局监督销毁过程）

经本局现场监督，该公司已完成销毁工作。

鄞州区环境保护局

2004.03.01

Destruction Certificate for Yizheng (By Local EPB)

设备销毁报告

项目单位名称	江苏仪征市节能环保设备厂		
销毁报告编号		设备销毁时间	2004年3月 日
设备销毁地点	江苏仪征市解放东路41号		

	姓名（签字）	职务	单位名称
主要参加销毁人员	陈洪	局长	仪征市环境保护局
	刘毅	监理员	仪征市环境保护局
	王	副科长	仪征市环境保护局
	姚勇	总经理	江苏仪征市节能环保设备厂
	祁修松	生产主管	江苏仪征市节能环保设备厂

	设备名称	规格型号	照片编号
销毁设备明细	聚氨酯低压发泡机	2000	
	聚氨酯低压发泡机	2000	
	高压无空气喷涂发泡机	2000	

附件	附件1 公证机关出具的公证书（适用于公证部门监督销毁过程） 附件2 销毁过程照片（照片____张，编号__________至__________） 附件3 销毁过程录像（在第____号光盘） 附件4 废钢铁回收证明

公章	签署该合同企业公章	地方环保局公章 (适用于地方环保局监督销毁过程)

（印章：……市节能环保设备厂；……征市环境保护局）

Destruction Certificate for Hongyu (By Local EPB)

设备销毁报告

项目单位名称	河南红宇机械厂		
销毁报告编号		设备销毁时间	2004 年 2 月 25 日
设备销毁地点	郑州市中牟县建设南路32号河南红宇机械厂		

主要参加销毁人员	姓名	职务	单位名称
	马秀[illegible]	污管科科长	中牟县环境保护局
	[illegible]	监理站长	中牟县环境保护局
	[illegible]	总经理助理	河南红宇机械厂
	[illegible]	副总工程师	河南红宇机械厂
	[illegible]	工程师	河南红宇机械厂
	[illegible]中[illegible]	设备管理员	河南红宇机械厂
	[illegible]	维修工	河南红宇机械厂

销毁设备明细	设备名称	规格型号	照片编号
	聚氨酯泡沫塑料高压浇注机	GZ(H)120	

附件

附件 1　公证机关出具的公证书（适用于公证部门监督销毁过程）

附件 2　销毁过程照片（照片____张，编号________至________）

附件 3　销毁过程录像（在第________号光盘）

附件 4　废钢铁回收证明

公章

签署项目合同企业公章

地方环保局公章（适用于地方环保局监督销毁过程）

[Stamp: 河南红宇机械厂] [Stamp: 中牟县环境保护局]

Destruction Certificate for Longan (By Local EPB)

设备销毁报告

项目单位名称	武汉龙安集团有限责任公司			
销毁报告编号	LA-Sb-xh-017	设备销毁时间	2004 年 3 月 12 日	
设备销毁地点	龙安集团 4 号厂房生产二车间发泡场地			

	姓名	签名	职务	单位名称
主要参加销毁人员	陈聚	陈聚	副局长	武汉市东湖新技术开发区环保局
	徐卫	徐卫	副总经理	龙安集团
	程清明	程清明	主任	龙安集团生产二车间
	龙跃武	龙跃武	处长	龙安集团机动处
	徐友华	徐友华	主任	龙安集团机动处设备室
	朱鹏杰	朱鹏杰	环保主管	龙安集团设备动力处环保主管
	付勇	付勇	设备主管	龙安集团设备动力处设备主管

设备销毁明细	设备名称	规格型号	照片编号
	1. 发泡机	2kg/min	F-001
			F-002
	2. 发泡机	2kg/min	F-003
			F-004
	3. 发泡机	10kg/min	F-005
			F-006
	4. 其他		F-007
			F-008

附件	附件 1　公证机关出具的公证书（适用于地方环保局监督销毁过程） 附件 2　销毁过程照片（照片-8-张，编号F-001至F-008） 附件 3　销毁过程录像（在第--1--号光盘） 附件 4　废钢铁回收证明
公章	签署项目合同企业公章　　地方环保局公章 （适用于地方环保局监督销毁过程）

Destruction Certificate for Songliao
(By Local EPB)

Q /STY– 2004-0201

汽车泡沫项目报废设备销毁报告

销毁设备编号：TY8028、SY8028

报告编制单位：沈阳天威专用汽车制造有限公司

报告编制日期：2004年3月9日

设 备 销 毁 报 告

表 1

项目单位名称		沈阳天鹰专用汽车制造有限公司		
销毁报告编号		Q/STY-2004-0201	设备销毁日期	2004 年 3 月 9 日
设备销毁地点		沈阳天鹰专用汽车制造有限公司垃圾站		
主要参加销毁人员	姓名(签字)	职务	单位名称	
销毁设备明细	设备名称	规格型号	照片编号	
	聚氨酯喷涂发泡机	TYS027	002	
	聚氨酯喷涂发泡机	TYS028	003	
附件	附件 1.销毁过程照片(照片_10_张,编号__001___至__010__) 附件 2. 环保局证明 附件 3.废铁回收证明			
公章	签署项目公司同企业公章		地方环保局公章	

附件 2

证　　明

随着社会的发展，全人类对环境保护的意识正在发生着日新月异的改变。根据联合国环境保护组织（汽车泡沫伞形项目）和国家环保局外经办－汽车泡沫工作组的要求，应企业的邀请，我局委派了工作人员对沈阳天鹰专用汽车制造有限公司将编号为（TYS027，TYS028）两台聚氨酯喷涂发泡机的销毁进行了监督检查。

兹证明沈阳天鹰专用汽车制造有限公司将编号为（TYS027，TYS028）两台聚氨酯喷涂发泡机销毁情况属实，销毁后将解体的设备放置入垃圾站中，作为废钢铁待卖，销毁后的设备不再具有发泡功能。

特此证明！

沈阳市环保局

2004 年 3 月 22 日

Destruction Certificate for Tianyun

(Notarization)

公　证　书

中华人民共和国北京市丰台区公证处

公　　证　　书

(2004)京丰证民字第0288号

申请人：北京晨光天云特种车辆有限责任公司（原北京天云汽车改装厂），企业法人营业执照（副本）注册号：1100001285236（1-1），住所：北京市丰台区云岗北区北里一号。

法定代表人：杜尧，男，职务：董事长。

委托代理人：杨世峰，男，职务：副总经理。

公证事项：现场监督。

申请人北京晨光天云特种车辆有限责任公司的委托代理人杨世峰于二〇〇四年二月十七日来到我处，向我处申请对该公司销毁两台汽车发泡设备的过程进行现场监督公证。

经查，申请人向本处提交了身份证、企业法人营业执照(副本)、委托书、汽车泡沫项目报废设备销毁办法、证明等证明材料。申请人具有法律规定的民事权利能力和民事行为能力，申请人的委托代理人具有法律规定的代理权。

根据《中华人民共和国公证暂行条例》、《公证程序规则》的规定，本公证员与本处公证人员刘雅静于二〇〇四年二月十八日上午在申请人的发泡间对申请人销毁两台发泡设备[GZ（Y）-40 型聚氨酯泡沫塑料(PU)浇注

机、 GF-2 型设备]的过程进行了监督。申请人的委托代理人杨世峰、设备室工作人员张斌及该公司工人张宝林、徐文桂参加了整个销毁过程。本公证员现场拍摄照片 12 张，并当场制作《现场记录》一份共 1 页，公证人员刘雅静进行了摄像。

兹证明与本公证书相粘连的《现场记录》的复印件内容与原件内容相符，原件上杨世峰、张斌、张宝林、徐文桂、公证人员刘雅静之签名均属实，本公证书所附照片共 12 张，均为现场拍摄。《现场记录》原件、照片底片及现场录制的录像带保存于我处。

附：1、《现场记录》复印件一份共 1 页；

2、照片 12 张。

中华人民共和国北京市丰台区公证处

公证员：

二〇〇四年二月十八日

Attachment 6

STATEMENT OF ACCOUNT

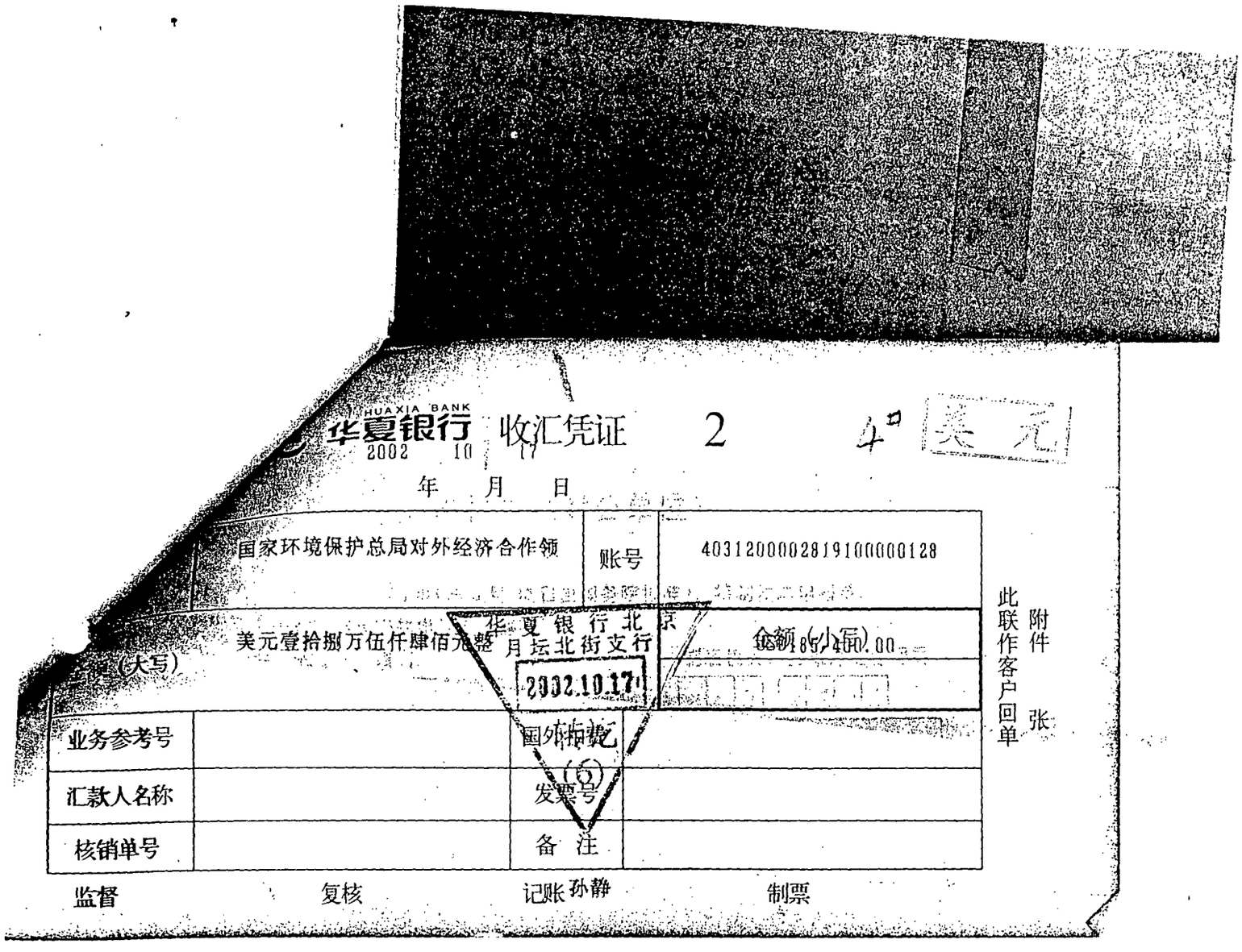
UNIDO Project: MP/CPR/01/167 UNIDO Contract No. 2002/055

Submission Date: 11/25/2004 Page 1 of 2

Series No.	Payment reason	Amount US$	Date
	Payment recived from UNIDO		
1	1st payment recived from UNIDO	180, 000. 00	10/2002
2	2nd payment recived from UNIDO	120, 000. 00	11/2003
3	3rd payment recived from UNIDO	120, 000. 00	11/2003
4	4th payment recived from UNIDO	86,067.21	08/2004
	Total recived	**506, 067. 21**	
	Amount of the Contract	600, 000. 00	
	Total actual amount	516, 520. 46	
	To be recived	10, 453. 25	
	Payment to Local Engineering company		
1	1st payment	15, 935. 82	01/2004
2	2nd payment	47, 807. 46	01/2004
3	3rd payment	47, 808. 04	06/2004
4	4th payment	31, 872. 02	06/2004
	Total paid to Local Engineering Company	**143, 423. 34**	
	Amount of the Contract	159, 443. 10	Note
	Total of Contract Amount	**159, 443. 10**	
	To be paid	16, 019. 76	
	Payment for imported equipment		
	High Pressure Foaming Machine		
1	10% payment to Cannon (Tianyun, Yinxian,	17, 020. 00	06/2003
2	80% payment to Cannon (Tianyun, Yinxian,	136,160	03/2004
3	10% payment to Cannon (Tianyun, Yinxian,	17, 020. 00	07/2004
4	Sub-total	170,200.00	
	Spray Machine		
1	90% payment to TECMAC	116, 527. 50	09/2003
2	10% payment to TECMAC	12, 947. 50	02/2004
3	Sub-total	129, 475. 00	
	Total Payment for Imported Equipment	299, 675. 00	
	Amount of the Contract	299, 675. 00	

	To be paid	0. 00	
	Payment for overseas study tour		
1	100% payment to FECO/SEPA	26, 067. 21	12/2003
	Total Payment for Overseas Study Tour	26, 067. 21	
	To be paid	0. 00	
	Payment for the technical seminar		
1	100% payment to FECO/SEPA	31, 335. 15	
	Total Payment for the technical seminar	31, 335. 15	
	To be paid	0. 00	

Note: The contract price is denominated in RMB and paid in RMB. The equivalent US dollar values for the contract price and payments are subject to the exchange rates at the points of time when they are made.



HUAXIA BANK
华夏银行 收汇凭证 2
2002 10 17
年 月 日

4□ 美元

国家环境保护总局对外经济合作领		账号	40312000028191000000128
美元壹拾捌万伍仟肆佰元整	华夏银行北京月坛北街支行 2002.10.17	金额(小写)	185,400.00
业务参考号		国外指定 (6)	
汇款人名称		发票号	
核销单号		备注	

此联作客户回单 附件 张

监督 复核 记账 孙静 制票

来1

1st payment from UNIDO to SEPA
(USD 185,400)

华夏银行 HUAXIA BANK 收汇凭证 2

2003 年 11 月 03 日

名称	国家环境保护总局环境保护对外合	账号	403120000281910000012 8
金额（大写）	美元壹拾贰万叁仟陆佰元整		金额（小写） USD123,600.00
业务参考号		国外[illegible]	
汇款人名称	UNIDO	发票号	
核销单号		备 注	

华夏银行北京长安支行 2003.11.3 转讫

此联作客户回单 附件 张

监督 复核 记账 制票

来2

2nd Payment from UNIDO to SEPA

(USD123,600)

中 国 国 家 环 境 保 护 总 局

CHINA STATE ENVIRONMENTAL PROTECTION ADMINISTRATION

115 Nanxiaojie, Xizhimennei, Beijing 100035, The People's Republic of China

Telephone No.: 0086-10-66111413 Facsimile: 0086-10-66151776

Date: September 30, 2003

INVOICE

Contract No.2002/055 between UNIDO and SEPA concerning the provision of services related to the PHASE OUT OF CFC-11 WITH HCFC-141B AT 6 COMPANIES AND PHASE OUT OF CFC-11 BY CONVERSION TO WATER BLOWN TECHNOLOGY AT ONE COMPANY (UMBRELLA PROJECT) **(ICC component of the project)**

In accordance with the Contract conditions item 8.2 paragraph b)
Upon UNIDO's receipt and acceptance of SEPA's Progress Report 2 referred to in sub-paragraphs 3.11 b) of the Contract,

The disbursement of	USD	120,000
The service charge of	USD	3,600
Total amount	USD	123,600

Subject for transfer to the SEPA Account USD 123,600 (Say US Dollar One Hundred twenty Three Thousand Six Hundred only).

Beneficiary's Bank: XUAXIA BANK-BANKING DEPT. (SWIFT BIC: HXBKCNBJ030)
JP MORGAN CHASE BANK, NEW YORK (SWIFT BIC: CHASUS33)
Account No.: 00040801698
Final Beneficiary: FECO, SEPA 433-8191128

Song Xiaozhi
Deputy Director-General
FECO/SEPA

HUAXIA BANK

华夏银行 收汇凭证 2

2003 11 24

年 月 日

	国家环境保护总局环境保护对外合	账号	40312000028191000000128
金额（大写）	美元玖拾万零陆仟肆佰捌拾伍元伍	金额（小写）	USD906,485.51
业务参考号		国外扣费	
汇款人名称		发票号	
核销单号		备 注	

此联作客户回单 附件 张

监督 复核 记账孙静 制票

3rd payment from UNIDO to SEPA

(USD 123,600)

中 国 国 家 环 境 保 护 总 局

CHINA STATE ENVIRONMENTAL PROTECTION ADMINISTRATION

115 Nanxiaojie, Xizhimennei, Beijing 100035, The People's Republic of China

Telephone No.: 0086-10-66111413 Facsimile: 0086-10-66151776

Date: October 29, 2003

INVOICE

Contract No.2002/055 between UNIDO and SEPA concerning the provision of services related to the PHASE OUT OF CFC-11 WITH HCFC-141B AT 6 COMPANIES AND PHASE OUT OF CFC-11 BY CONVERSION TO WATER BLOWN TECHNOLOGY AT ONE COMPANY (UMBRELLA PROJECT) **(ICC component of the project)**

In accordance with the Contract conditions item 8.2 paragraph c)
Upon UNIDO's receipt and acceptance of SEPA's Progress Report 3 referred to in sub-paragraphs 3.11 c) of the Contract,

The disbursement of	USD	120,000
The service charge of	USD	3,600
Total amount	USD	123,600

Subject for transfer to the SEPA Account USD 123,600 (Say US Dollar One Hundred twenty Three Thousand Six Hundred only).

Beneficiary's Bank: XUAXIA BANK-BANKING DEPT. (SWIFT BIC: HXBKCNBJ030)
JP MORGAN CHASE BANK, NEW YORK (SWIFT BIC: CHASUS33)
Account No.: 00040801698
Final Beneficiary: FECO, SEPA 433-8191128

Xiong Kang
for Liu Yi
Director-General
FECO/SEPA

三联）

华夏银行 HUAXIA BANK 收汇凭证 2

2004 08 02

年 月 日

单位名称	国家环境保护总局环境保护对外合作中心	账号	403120000281910000128
金额（大写）	美元捌万捌仟陆佰肆拾玖元贰角叁分	金额（小写）	USD88,649.23
业务参考号		国外扣费	
汇款人名称		发票号	
核销单号		备 注	

监督 复核 记账 孙静 (1 制票

此联作客户回单 附件 张

4th payment from UNIDO to SEPA

(USD88,649.23)

国 家 环 境 保 护 总 局
THE STATE ENVIRONMENTAL PROTECTION ADMINISTRATION
115 Nanxiaojie, Xizhimennei, Beijing 100035, The People's Republic of China

Telephone No.: 0086-10-67116382 Facsimile: 0086-10-67136207

Date: June 10, 2004

INVOICE

Contract No.2002/055 between UNIDO and SEPA concerning the provision of services related to the PHASE OUT OF CFC-11 WITH HCFC-141B AT 6 COMPANIES AND PHASE OUT OF CFC-11 BY CONVERSION TO WATER BLOWN TECHNOLOGY AT ONE COMPANY (UMBRELLA PROJECT) **(ICC component of the project)**

In accordance with the payment schedule of the above Contract and the agreement* with UNIDO with regard to the partial release of funds:

The disbursement of	USD	86,067.21
The service charge of	USD	2,582. 02
Total amount	USD	88,649.23

Subject for transfer to the SEPA Account USD 88,649.23 (Say US Dollar Eighty Eight Thousand Six Hundred and Forty Nine Twenty Three Cents only).

Beneficiary's Bank: HUAXIA BANK-BANKING DEPT. (SWIFT BIC: HXBKCNBJ030)
JP MORGAN CHASE BANK, NEW YORK (SWIFT BIC: CHASUS33)
Account No.: 00040801698
Final Beneficiary: FECO, SEPA 433-8191128

Song Xiaozhi
Deputy Director-General
FECO/SEPA

国家环境保护总局环境保护对外合作中心 结算财务专用章

* see attached letter of SEPA to UNIDO, dated 10 June 2004

1st payment to Cannon (10%)

2 ⑤

美元

HUAXIA BANK 华夏银行

境外电汇申请书
APPLICATION FOR TELEGRAPHIC TRANSFERS (OVERSEAS)

客户收据
CUSTOMER RECEIPT

日期 Date 2003.07.09

Ref. No.	TT	收电行 Receiver	
起息日 Value Date		汇款币别及金额 Currency & Amount	USD 91,020.00
50: 汇款人 By order of	China Green Enterprise Limited		
56A: 收款银行之代理行名称及地址 Correspondent of Beneficiary's Banker Name & Address			名称 Name / 地址 Address
	收款人开户银行在其代理行账号 Bene Banker's a/c No. /		
57: 收款人开户银行名称及地址 Beneficiary's Banker Name & Address	BANCA NAZIONALE DEL LAVORO SARONNO		名称 Name / 地址 Address
	收款人账号 Beneficiary's a/c No. / IT...00100501200000000...8		
59: 收款人名称及地址 Beneficiary's Name & Address	Ares S.p.A. / Via G. Emilis 05 21042 Caronno Pertusella (VA) Italy		名称 Name / 地址 Address
70: 汇款附言 Details of Payment	Advance Payment	71: 国外费用 All Bank's Charges outside China if any are to be borne by	☑ 收款人 Beneficiary ☐ 汇款人 Remitter

170,000 × 54,000 / 91,020

FOR APPLICANT

华夏银行北京长安支行 2003.07.09 转讫 (5)

银行专用栏 For Bank Use Only	
牌价 Rate @	828.47
等值人民币 Yuan Equivalent	754,08?.49
手续费 Commission	774.13
邮电费 Charges	150
合计 Total	904.13
支付费用方式 In Payment of the Remittance	☐ 现金 by Cash ☐ 支票 by Check ☐ 外汇户 from Account

申请人签章 Applicant's Signature

[Stamps: 中绿实业有限公司 财务专用章; 之路印斌]

申请人名称 Name of Applicant

账号 A/C No.

电话 Phone No.

[Stamp: 华夏银行北京长安支行 2003.07.09 会计业务专用章 (1)]

核准人签字 Authorized Person

日期 Date 2003.7.9

任何查询，请述明我行之号码
In all enquiries, please quote our ref. no.

海外汇款，概以申请人提供收款人之情况作为解付依据，因提供情况有误而引致损失，银行概不负责。
For overseas remittance payment is made according to the Beneficiary's information provided by the applicant. In the event that incorrect information is provided the Bank is not liable for any loss which may occur.

第五联 由银行作为客户收据

Cannon

ORIGINAL

Cannon

POLYURETHANE TECHNOLOGY DIVISION

M/S:
CHINA GREEN ENTERPRISE LIMITED
4/F Bldg No.3, Xizhimen Hotel,
No. 172, Xizhimennei Dajie,
Xicheng District
Beijing, 100035, P.R. China

Attn.: Cyndi Yang

Pro-forma invoice no.:	084/03 Date: 18th April, 2003
References:	project no.: UNIDO MP/CPR/01/167 contract no.: CGEL-029-T&R dated: April 2003 received on: 7th April 2003.
Delivery:	100 working days after effectiveness of the Contract.
Goods:	CIF, Tianjin port, China.
Destination:	- Beijing Tianyun Auto Modification Plant, Beijing - Zhejiang Nibo Yingxian Mobil Internal Decoration Parts Factory, Nibo, Zhejiang - Henan Hongyu Mechanical Factory, Henan
Total amount of supply:	170,200.00.=USD.
Payment:	10% by T/T in advance, on receipt of invoice 80% by T/T on delivery of the goods 10% by T/T on Certificate of Acceptance issuing, but not later than 90 days after the arrival of the goods at destination port, against Performance Security.
Instructions manuals:	no. 3 copies – English/Chinese language.
Spare parts:	no. 1 set for each machine, included.
Installation, commissioning and training:	included, by Cannon technicians.
Warranty:	12 months after acceptance of the goods but not longer than 24 months from delivery of the goods.

HUAXIA BANK 华夏银行

境外电汇申请书
APPLICATION FOR TELEGRAPHIC TRANSFERS (OVERSEAS)

Co2p

美元 ⑤

2

华夏银行
HUA XIA BANK P.R. CHINA

客户收据
CUSTOMER RECEIPT

日期 Date 1.2.4

2nd Payment to Cannon (80%)

20: 本行编号 Our Ref. No.	TT	收电行 Receiver	
32A 起息日 Value Date		汇款币别及金额 Currency & Amount	
50: 汇款人 By order of			
56A 收款银行之代理行名称及地址 Correspondent of Beneficiary's Banker Name & Address	名称 Name 地址 Address 收款人开户银行在其代理行账号 Bene Banker's a/c No. /		
57: 收款人开户银行名称及地址 Beneficiary's Banker Name & Address	名称 Name 地址 Address 收款人账号 Beneficiary's a/c No. /		
59: 收款人名称及地址 Beneficiary's Name & Address	名称 Name 地址 Address		
70: 汇款附言 Details of Payment		71: 国外费用 All Bank's Charges outside China if any are to be borne by ☐ 收款人 Beneficiary ☐ 汇款人 Remitter	

华夏银行北京长安支行 2004.3.4

FOR APPLICANT

银行专用栏 For Bank Use Only		申请人签章 Applicant's Signature	
牌价 Rate @			
等值人民币 Yuan Equivalent			
手续费 Commission			
邮电费 Charges			
合计 Total			
支付费用方式 In Payment of the Remittance	☐ 现金 by Cash ☐ 支票 by Check ☐ 外汇户 from Account.	申请人名称 Name of Applicant 账号 A/C No. 电话 Phone No.	核准人签字 Authorized Person 日期 Date

华夏银行北京长安支行 2004.03.04 会计业务专用章

第五联 此联作为客户收据

任何查询，请述明我行编号
In all enquiries please quote our ref no.

海外汇款，概以申请人提供收款人之情况内容为解付依据，因提供错误内容而引致损失，银行概不负责。
For overseas remittance,payment is made according to the Beneficiary's information provided by the applicant.In the event that incorrect information is provided,the Bank is not liable for any loss which may occur.

Cannon 2 USD 136160.

ORIGINAL

Cannon

POLYURETHANE TECHNOLOGY DIVISION

Messrs.
CHINA GREEN ENTERPRISE LIMITED
4/F Bldg No.3, Xizhimen Hotel,
No. 172, Xizhimennei Dajie,
Xicheng District
Beijing, 100035, P.R. China

Attn.: Cyndi Yang

Pro-forma invoice no.:	**084/03** Date: **18th April, 2003**
References:	**project no.: UNIDO MP/CPR/01/167** **contract no.: CGEL-029-T&R** **dated: April 2003** **received on: 7th April 2003.**
Delivery:	**100 working days after effectiveness of the Contract.**
Goods:	**CIF, Tianjin port, China.**
Destination:	**- Beijing Tianyun Auto Modification Plant, Beijing** **- Zhejiang Nibo Yingxian Mobil Internal Decoration Parts Factory, Nibo, Zhejiang** **- Henan Hongyu Mechanical Factory, Henan**
Total amount of supply:	**170,200.00.=USD.**
Payment:	**10% by T/T in advance, on receipt of invoice** **80% by T/T on delivery of the goods** **10% by T/T on Certificate of Acceptance issuing, but not later than 90 days after the arrival of the goods at destination port, against Performance Security.**
Instructions manuals:	**no. 3 copies – English/Chinese language.**
Spare parts:	**no. 1 set for each machine, included.**
Installation, commissioning and training:	**included, by Cannon technicians.**
Warranty:	**12 months after acceptance of the goods but not longer than 24 months from delivery of the goods.**

HUA XIA BANK

华夏银行

境 外 电 汇 申 请 书

APPLICATION FOR TELEGRAPHIC TRANSFERS (OVERSEAS)

⑤

华夏银行
HUA XIA BANK P.R. CHINA

客户收据
CUSTOMER RECEIPT

日期 Date 2024.7.19

3rd Payment to Cannon (10%)

20: 本行编号 Our Ref. No.	TT	收电行 Receiver	
32A 起息日 Value Date		汇款币别及金额 Currency & Amount	
50: 汇款人 By order of	[illegible] Limited		
56A 收款银行之代理行名称及地址 Correspondent of Beneficiary's Banker Name & Address	名称 Name 地址 Address 收款人开户银行在其代理行账号 Bene Banker's a/c No. /		
57: 收款人开户银行名称及地址 Beneficiary's Banker Name & Address	名称 Name 地址 Address 收款人账号 Beneficiary's a/c No. /		
59: 收款人名称及地址 Beneficiary's Name & Address	名称 Name 地址 Address		
70: 汇款附言 Details of Payment		71: 国外费用 All Bank's Charges outside China if any are to be borne by ☐ 收款人 Beneficiary ☐ 汇款人 Remitter	

FOR APPLICANT

银行专用栏 For Bank Use Only	
牌价 Rate @	1 C
等值人民币 Yuan Equivalent	USD 38.38
手续费 Commission	
邮电费 Charges	11
合计 Total	
支付费用方式 In Payment of the Remittance	☐ 现金 by Cash ☐ 支票 by Check ☐ 外汇户 from Account.

申请人签章 Applicant's Signature

申请人名称 Name of Applicant
账号 A/C No.
电话 Phone No.

2024.7.19

核准人签字 Authorized Person

日期 Date

任何查询，请述明我行编号
In all enquiries please quote our ref no.

海外汇款，概以申请人提供收款人之情况内容为解付依据，因提供错误内容而引致损失，银行概不负责。
For overseas remittance,payment is made according to the Beneficiary's information provided by the applicant.In the event that incorrect information is provided,the Bank is not liable for any loss which may occur.

17020

USD 17020.-

Cannon 3

ORIGINAL

Messrs.
CHINA GREEN ENTERPRISE LIMITED
4/F Bldg No.3, Xizhimen Hotel,
No. 172, Xizhimennei Dajie,
Xicheng District
Beijing, 100035, P.R. China

Attn.: Cyndi Yang

Pro-forma invoice no.:	**084/03** Date: **18th April, 2003**
References:	**project no.: UNIDO MP/CPR/01/167** **contract no.: CGEL-029-T&R** **dated: April 2003** **received on: 7th April 2003.**
Delivery:	**100 working days after effectiveness of the Contract.**
Goods:	**CIF, Tianjin port, China.**
Destination:	**- Beijing Tianyun Auto Modification Plant, Beijing** **- Zhejiang Nibo Yingxian Mobil Internal Decoration Parts Factory, Nibo, Zhejiang** **- Henan Hongyu Mechanical Factory, Henan**
Total amount of supply:	**170,200.00.=USD.**
Payment:	**10% by T/T in advance, on receipt of invoice** **80% by T/T on delivery of the goods** **10% by T/T on Certificate of Acceptance issuing, but not later than 90 days after the arrival of the goods at destination port, against Performance Security.**
Instructions manuals:	**no. 3 copies – English/Chinese language.**
Spare parts:	**no. 1 set for each machine, included.**
Installation, commissioning and training:	**included, by Cannon technicians.**
Warranty:	**12 months after acceptance of the goods but not longer than 24 months from delivery of the goods.**

华夏银行

电 汇 申 请 书

APPLICATION FOR TELEGRAPHIC TRANSFERS (OVERSEAS)

客户收据

CUSTOMER RECEIPT

美元

Payment to TECMAC (90%)

日期 Date

收电行 Receiver	4116,527.50
汇款币别及金额 Currency & Amount	USD 116,527.50
Order of	China Green Enterprise Limited
收款银行之代理行名称及地址 Correspondent of Beneficiary's Banker Name & Address	名称 Name / 地址 Address
收款人开户银行在其代理行账号 Bene Banker's a/c No.	
57: 收款人开户银行名称及地址 Beneficiary's Banker Name & Address	名称 Name: BANCA COMIT ... / 地址 Address: Corso ...
收款人账号 Beneficiary's a/c No.	...01.92
59: 收款人名称及地址 Beneficiary's Name & Address	名称 Name: TECMAC ... / 地址 Address: ... via ... 28066 GALLIATE (NO) ITALY
70: 汇款附言 Details of Payment	90% Payment
71: 国外费用 All Bank's Charges outside China if any are to be borne by	☑ 收款人 Beneficiary ☐ 汇款人 Remitter

FOR APPLICANT

华夏银行北京长安支行 2003.09.30 转讫 (6)

银行专用栏 For Bank Use Only	
牌价 Rate	
等值人民币 Yuan Equivalent	
手续费 Commission	
邮电费 Charges	
合计 Total	
支付费用方式 In Payment of the Remittance	☐ 现金 by Cash ☐ 支票 by Check ☐ 外汇户 from Account

申请人签章 Applicant's Signature

申请人名称 Name of Applicant

账号 A/C No.

电话 Phone No.

刘亿之印 · 路斌之印

核准人签字 Authorized Person

日期 Date

任何查询，请述明我行编号

In all enquiries please quote our Ref. No.

海外汇款，概以申请人提供收款人之情况内容为解付依据，因提供错误内容而引致损失，银行概不负责。

For overseas remittance payment is made according to the Beneficiary's information provided by the applicant. In the event that incorrect information is provided the Bank is not liable for any loss which may occur.

TECMAC 90%

43

TEC MAC SRL

MACCHINE E IMPIANTI INDUSTRIALI

Via Mattei 32, 28066 GALLIATE (NO), ITALY
Tel. +39-0321-863163 +39-0321-864589 +39-0321-806250 Fax +39-0321-863163
E-mail: info@tecmac.com Website: www.tecmac.com

Messrs.
CHINA GREEN ENTERPRISE LIMITED
4/F Bldg No.3, Xizhimen Hotel
No.172, Xizhimennei Dajie, Xicheng District
Beijing
Postal Code 100035,
People's Republic of CHINA

Galliate, 30th June 2003

PROFORMA INVOICE N° 9642/E

Project MP/CPR/01/167
IFB N°: CGEL028-T&R

Ref.:	your request
Delivery:	90 days after effectiveness of the contract
Payment:	* Payment of 90% of the Contract price. The payment of ninety percent (90%) of the Contract price, i.e. USD 116,527.50 (SAY:U.S.DOLLARS one hundred sixteen thousand and five hundred twenty seven and fifty cents ONLY) shall be made by Check or Telegraphic Transfer (T/T) upon the Seller's presentation of the following documents: (a)Three original and two copies of manually signed commercial invoices, marking contract number and L/C No.; (b)Three original and two copies of proforma invoices covering the total contract price; (c)Full set in 3 originals and 2 copies of Clean on Board Bill of Lading marked "freight prepaid" and made out to order, blank endorsed, and notifying the Buyer and (name of the enterprise); (d) Three (3) original and two (2) copies of weight memo/packing list; (e)Three (3) original and two (2) copies of quality certificate issued by the Manufacturer; (f)One (1) original and two (2) copies of detailed factory inspection report issued by the Manufacturer; (g)One original and two copies of Insurance Policy/Certificate covering 110% of the total invoice value against all risks with the Buyer as the beneficiary; (h)Three (3) originals and Two (2) copies of certificate of country of origin issued by local Chamber of Commerce (i)Three (3) original and Two (2) copies Certificate of Heat Treatment issued by Authority or Certificate of Non-Wooden Packing issued by the Seller for the Buyer to apply for the quarantined inspection at the entry port animal and plant quarantine office.

	* Payment of 10 % of the Contract Price The payment of the remaining ten percent (10%) of the Contract Price, i.e. 12,947.50 USD (Say: U.S. DOLLARS twelve thousand nine hundred forty seven and fifty cent ONLY) shall be made by Check or Telegraphic Transfer (T/T) upon the Seller's presentation of the following documents: (a) Three original and two copies of signed commercial invoices, marking contract number; (b) Three original and two copies of proforma invoices covering the total contract price; (c) One original and two copies of Performance Bank Guarantee issued by the Seller's bank as specified in Clause 17 of Terms and Conditions of the Contract (Attachment 1) (Specimen as per Attachment 6); (d) One original and two copies of Certificate of Acceptance issued by the Buyer or the Buyer's representatives.
Our Bank:	**BANCA COMIT INTESA BCI** Corso Cavour- Novara ABI: 3069 CAB: 10130.3 SWIFT: BCI TIT MM 430 C/C: 5038934.01.32
Testing:	c/o our factory
Shipment:	CIF Tianjin, People's Republic of China
Guarantee:	12 months
Validity:	120 days

Via Mattei 32, 28066 GALLIATE (NO), ITALY

华夏银行

境 外 电 汇 申 请 书

APPLICATION FOR TELEGRAPHIC TRANSFERS (OVERSEAS)

⑤

华夏银行
HUA XIA BANK P.R. CHINA

客户收据
CUSTOMER RECEIPT

日期
Date _____

Payment to TECMAC (10%)

20: 本行编号 Our Ref. No.	TT	收电行 Receiver	
32A 起息日 Value Date		汇款币别及金额 Currency & Amount	
50: 汇款人 By order of			
56A 收款银行之代理行名称及地址 Correspondent of Beneficiary's Banker Name & Address			名称 Name 地址 Address
	收款人开户银行在其代理行账号 Bene Banker's a/c No. /		
57: 收款人开户银行名称及地址 Beneficiary's Banker Name & Address			名称 Name 地址 Address
	收款人账号 Beneficiary's a/c No. /		
59: 收款人名称及地址 Beneficiary's Name & Address			名称 Name 地址 Address
70: 汇款附言 Details of Payment		71: 国外费用 All Bank's Charges outside China if any are to be borne by ☑ 收款人 Beneficiary ☐ 汇款人 Remitter	

FOR APPLICANT

银行专用栏 For Bank Use Only		申请人签章 Applicant's Signature	
牌价 Rate @	LV		
等值人民币 Yuan Equivalent			
手续费 Commission			
邮电费 Charges			
合计 Total			
支付费用方式 In Payment of the Remittance	☐ 现金 by Cash ☐ 支票 by Check ☐ 外汇户 from Account.	申请人名称 Name of Applicant 账号 A/C No. 电话 Phone No.	核准人签字 Authorized Person 日期 Date

任何查询，请述明我行编号
In all enquiries please quote our ref no.

海外汇款，概以申请人提供收款人之情况内容为解付依据，因提供错误内容而引致损失，银行概不负责。
For overseas remittance,payment is made according to the Beneficiary's information provided by the applicant.In the event that incorrect information is provided,the Bank is not liable for any loss which may occur.

第五联 此联作为客户收据

TECMAC 10% USD 12,947.50

TEC MAC SRL

MACCHINE E IMPIANTI INDUSTRIALI

Via Mattei 32, 28066 GALLIATE (NO), ITALY
Tel. +39-0321-863163 +39-0321-864589 +39-0321-806250 Fax +39-0321-863163
E-mail: info@tecmac.com Website: www.tecmac.com

Messrs.
CHINA GREEN ENTERPRISE LIMITED
4/F Bldg No.3, Xizhimen Hotel
No.172, Xizhimennei Dajie, Xicheng District
Beijing
Postal Code 100035,
People's Republic of CHINA

Galliate, 30th June 2003

PROFORMA INVOICE N° 9642/E

Project MP/CPR/01/167
IFB N°: CGEL028-T&R

Ref.:	your request
Delivery:	90 days after effectiveness of the contract
Payment:	* Payment of 90% of the Contract price. The payment of eighty percent (90%) of the Contract price, i.e. USD 116,527.50 (SAY:U.S.DOLLARS one hundred sixteen thousand and five hundred twenty seven and fifty cents ONLY) shall be made by Check or Telegraphic Transfer (T/T) upon the Seller's presentation of the following documents: (a)Three original and two copies of manually signed commercial invoices, marking contract number and L/C No.; (b)Three original and two copies of proforma invoices covering the total contract price; (c)Full set in 3 originals and 2 copies of Clean on Board Bill of Lading marked "freight prepaid" and made out to order, blank endorsed, and notifying the Buyer and (name of the enterprise); (d) Three (3) original and two (2) copies of weight memo/packing list; (e)Three (3) original and two (2) copies of quality certificate issued by the Manufacturer; (f)One (1) original and two (2) copies of detailed factory inspection report issued by the Manufacturer; (g)One original and two copies of Insurance Policy/Certificate covering 110% of the total invoice value against all risks with the Buyer as the beneficiary; (h)Three (3) originals and Two (2) copies of certificate of country of origin issued by local Chamber of Commerce (i)Three (3) original and Two (2) copies Certificate of Heat Treatment issued by Authority or Certificate of Non-Wooden Packing issued by the Seller for the Buyer to apply for the quarantined inspection at the entry port animal and plant quarantine office.

Project MP/CPR/01/167
IFB N°: CGEL028-T&R

	* Payment of 10 % of the Contract Price The payment of the remaining ten percent (10%) of the Contract Price, i.e. 12,947.50 USD (Say: U.S. DOLLARS twelve thousand nine hundred forty seven and fifty cent ONLY) shall be made by Check or Telegraphic Transfer (T/T) upon the Seller's presentation of the following documents: (a) Three original and two copies of signed commercial invoices, marking contract number; (b) Three original and two copies of proforma invoices covering the total contract price; (c) One original and two copies of Performance Bank Guarantee issued by the Seller's bank as specified in Clause 17 of Terms and Conditions of the Contract (Attachment 1) (Specimen as per Attachment 6); (d) One original and two copies of Certificate of Acceptance issued by the Buyer or the Buyer's representatives.
Our Bank:	**BANCA COMIT INTESA BCI** Corso Cavour- Novara ABI: 3069 CAB: 10130.3 SWIFT: BCI TIT MM 430 C/C: 5038934.01.32
Testing:	c/o our factory
Shipment:	CIF Tianjin, People's Republic of China
Guarantee:	12 months
Validity:	120 days

Via Mattei 32, 28066 GALLIATE (NO), ITALY

(605 四版)

委托银行付款凭证 4（回　　单）

二〇〇四年　一　月　一　日

收款单位	全　称		付款单位	全　称	
	账号或住址			账号或住址	
	开户银行			开户银行	
结算金额（大写）					
用　途	货款				
上列款项已根据委托办理				备注	
银行盖章		经办人			

华夏银行北京长安支行 2004.1.20 转讫 (3)

USD 15935.82

2张 1

1st Payment to BCEL (Engineering Service)

USD 15,935.82

(Bank)

Receipt of the 1st payment to Engineering (BCEL)

此收据不作为经营性业务收支结算凭证用

收据

2004年 1 月 28 日 　　字 2020976

今收到 国家环境保护总局环境保护对外合作中心

交来 PU硬质泡沫塑料伞形项目

人民币（大写）壹拾叁万壹仟陆佰玖拾玖元玖角玖分

¥131,699.99

收款单位公章 　中国投鑫工程有限责任公司 财务专用章 　中国投鑫工程有限责任公司

收款人	甄	交款人	

第二联 交客户

委托银行付款凭证 4 (回) 单

年 月 日

收款单位	全称	[illegible]	付款单位	全称	
	账号或住址	[illegible]		账号或住址	
	开户银行	[illegible]		开户银行	
委托金额（大写）		[illegible]			
用途		转汇			
上列款项已根据委托办理					
银行盖章		经办人			

中华...银行北京长安支行
2004.1.20
转讫
(6)

$47,807.46

2nd payment to BCEL (USD47,807.46)

(Bank)

Receipt of the 2nd payment to Engineering

收据

此收据不作为经营性业务收支结算凭证用

2004 年 1 月 28 日　　字 2020977

今收到 国家环境保护总局环境保护对外合作中心

交来 PU硬质泡沫塑料全形项目

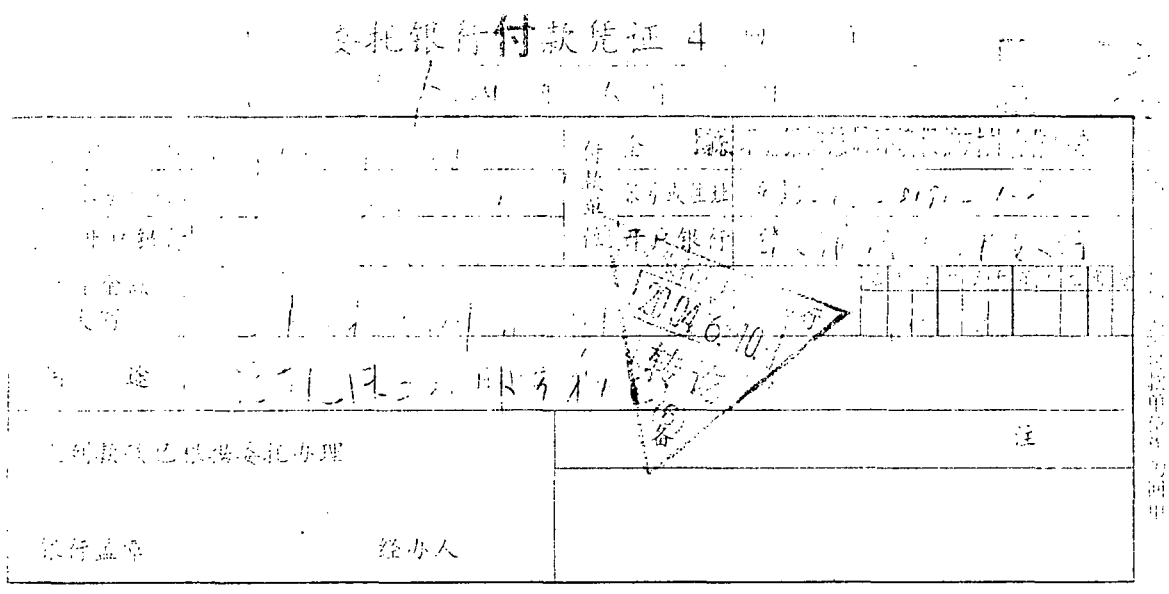
人民币（大写）叁拾玖万伍仟[illegible]玖角柒分

¥[illegible]099.97

收款单位公章　中国[illegible]工程有限责任公司 财务专用章

收款人 甄　　交款人

第二联　交客户



USD 47,808.00

3rd payment to BCEL (USD 47,808.04 2笔)

(Bank)

Receipt of the 3rd payment to Engineering

2004年12月1日　　字 3012367

此收据不作为经营性业务收支结算凭证用

收据

今收到 国家环保总局对外经济合作领导小组办公室

交来 汽车工程服务

人民币（大写）叁拾玖万伍仟零玖拾玖元玖角玖分

¥395,099.99

收款单位公章

中国中农国际工程有限公司 财务专用章

收款人	甄	交款人	

第二联　交客户

委托银行付款凭证 4（回　单）

美元

年　月　日

收款单位	全　称		付款单位	全　称	环境保护总局环境...
	账号或住址			账号或住址	
	开户银行			开户银行	
结算金额（大写）			亿	千	百	十	万	千	百	十	元	角	分
用　途													
上列款项已根据委托办理			注										
银行盖章　　经办人													

华夏银行北京长安支行 2004.6.10 转讫 (6)

此联由银行盖章后退给付款单位作为回单

VSD 31,872.02

2张 4

4th payment to BCEL (USD 31,872.02)

(Bank)

Receipt of the 4th payment to Engineering

收据

此收据不作为经营性业务收支结算凭证用

2004 年 12 月 1 日　　字 3012[illegible]66

今收到 国家环保总局对外经济合作领导小组办公室

来 汽车工程服务

人民币（大写）贰拾陆万叁仟叁佰玖拾玖元玖角叁分

¥ 263,399.93

收款单位 章　中国中轻国际工程有限公司

中国中轻国际工程有限公司 财务专用章

收款人	甄	交款人	

第二联　交客户

委托银行付款凭证 4（回 单） 美元

2003 年 12 月 31 日

收款单位	全称	[illegible]	付款单位	全　称	[illegible]
	账号或住址	[illegible]		账号或住址	[illegible]
	开户银行	[illegible]		开户银行	[illegible]
汇款金额（大写）	[illegible]		亿 千 百 十 万 千 百 十 元 角 分		
用　途	[illegible]				

上列款项已根据委托办理。

银行盖章　　　　经办人

备　　注

此联由银行盖章后退给付款单位作为回单

华夏银行北京长安支行
20 05.12.31
转讫
(6)

Payment for the overseas Study tour
(USD26,067.21)

委托银行付款凭证 4（回　　单）

2004 年 7 月 1 日

收款单位	全　称	[illegible]	付款单位	全　称	国家环境保护总局环境保护对外合作中心
	账号或住址	[illegible]		账号或住址	
	开户银行	[illegible]		开户银行	
结算金额（大写）				亿 千 百 十 万 千 百 十 元 角 分	
用　途					31,335.15
上列款项已根据委托办理。 银行盖章　　经办人			备注		

华夏银行北京长安支行 2004.7.1 转讫 (6)

此联由银行盖章后退给付款单位作为回单

payment For the Seminar

(USD 31,335.15)

Attachment 7

STUDY TOUR REPORT

Phasing out CFC-11 with HCFC-141b at six companies and phasing out CFC-11 by conversion to Water Blown Technology at one company (Umbrella Project)

Project Number: MP/CPR/01/167

Contract Number: 2002/055

Beijing China

January 2004

In order to learn the latest development of PU rigid foam technologies, their application as well as their future trend in Europe with a view to implementing smoothly the umbrella project of phasing out CFC-11 at six PU rigid foam companies and one integral skin company in China's transportation refrigeration sector, with the focus on the substitute technologies, a study tour was organized, with the agreement of UNIDO, the international implementing agency of the project, and visited Germany from December 11 to December 23, 2004.

The delegation was made up by 6 persons representing respectively State Environmental Protection' Administration, Domestic Implementing agency, beneficiary enterprises, local engineering service provider, and local technical experts. While in Germany, the delegation visited PU foam equipment manufacturers, chemical providers, testing machine makers, and foam producer including Krauss Maffei, one of the major PU foam equipment manufacturers in Germany, Elastorgran, a company affiliated to BASF, Teledoor, a PU rigid foam producer, Imtech, a company specialized in manufacturing of testing equipment for refrigeration vehicles.

The delegation was briefed at Krauss Maffei about different types of high pressure foaming machine it produces. The machines are widely used in different industries including auto industry. The technicians and engineers of Krauss Maffei also introduced to the delegation other related products including its new product of long fiber strengthening injection foaming machine. The delegation posed question of its interest, especially on ODS phaseout ones. The two sides discussed the issue in detail.

Bearing in mind that substitute chemicals are critical in the ODS phaseout effort, the delegation visited Elastorgran, BASF's PU chemical branch. The company introduced to the delegation the property standards, testing methods, storage, and prices of various chemical systems for spray, panel, and integrated skin production. Economic and technological comparison were also made for different substitute systems such as pentane, water blowing, HCFC-141b, and HFC-245fa. The company also showed the

delegation its workshops and laboratory.

At Teledoor, the delegation was shown the products it made including PU foam sandwich panel and other related products, and the equipment it used in its production. Detailed introduction was given. At Imtech, the delegation learned, through the introduction by the engineers of the company as well as field study, the company's testing machines with the focus on those used in auto industry for vibration tests, fatigue test, and aging test, etc. The company also introduced to the delegation technical standards in the tests. The delegation was also shown the machines that was being built.

The tour enabled the delegation members to learn the latest technologies applied in Europe in the fields of foam production, foam producing chemicals, foam producing equipment, and foam product testing machines, as well as their development trend. This will surely be helpful in China's ODS phaseout activities.

WORKSHOP REPORT

Phasing out CFC-11 with HCFC-141b at six companies and phasing out CFC-11 by conversion to Water Blown Technology at one company (Umbrella Project)

Project Number: MP/CPR/01/167

Contract Number: 2002/055

Beijing China

July 2004

The HCFC-141b technology is the most adopted technology in the production of insulation rigid foam for the refrigeration vehicles (including insulation vehicles) after conversion. Other technologies such as water were also used by some enterprises. However, problems were encountered by enterprises in terms of the quality of the products produced with substitute technologies. There are various reasons for this. The absence of product standards for the whole sector stands out as one of the most important reasons. In order for the enterprises to better use the substitute technology and ensure the quality of their products, it is necessary to establish new product standards or revise the existing ones. In this connection, SEPA proposed a technical seminar on the establishment of standards for products produced with substitute technologies aiming to collect opinions and recommendations from enterprises, industrial associations, research institutes, and experts, which can serve as preparation for the actual standard establishment/revision. The seminar can also serve as a training course in which enterprises can learn more about the substitute technologies through discussion. UNIDO reviewed the proposal and approved it.

The seminar was held on 11-14 July, 2004. The participants included technical experts from related research institutes, large automobile manufacturers, quality control and monitoring centres, automobile industrial association, transportation project enterprises, as well as project management personnel from SEPA.

Theoretical training was conducted by experts on PU rigid foam technology, technical requirements for foam products used in vehicles and the testing methods. The experts also briefed the seminar a report on the analysis of related PU insulation foam product standards for transportation sector adopted both in China and abroad. The content of the training included foam production formulations and their evolution, problems faced by enterprises, and the importance of establishing product standards. There was a good discussion after the introductions among the participants and comments and suggestions were voiced from the participants and some were considered valuable and recorded in the seminar's memo.

A plan for the next step's work on actual drafting the standards was also discussed and adopted at the seminar.