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Technical and Financial Audit of the CTC plant of Oltchim, Romania (Year 2008)

Project: Romania ODS production sector (MP/ROM/06/004)

(Site Visit Team)
ESS JAY CONSULTANTS: V. K. Trehan, Engineer, Technical Expert
Hitesh Mahajan, Chartered Accountant, Financial Expert

UNIDO: Ms. Arinda Cadariu, Consultant

Date of submission: 22nd November 2009

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Oltchim S.A. Audit Report for CY 2008

Introduction to the plant

Olthim is a 40-year old company that produces a wide range of chemicals.
In 1966, it commenced production of caustic soda and chlorine using the electrolysis of brine process.

A few years later, the company integrated forward by setting up a production facility for the manufacture of chlorinated solvents in 1974. The technology for this plant was licensed from Rhone and Progil, France.

Oltchim produces a wide range of chemicals which includes organic polymer related products, caustic soda/chlorine, organic synthetics, amines, pesticides, organic chlorinated products and chemical compounds using CTC as a process agent.

Chlorinated solvents production

Chlorinated solvents (CSs) are the subject matter of this report. CSs form only 3% of the turnover of Oltchim. The company has significantly reduced the production of CTC – from an average of 8,900 T in 1998-2000, to 154 T in 2007 and shifted to the production of perchloro ethylene (PCE), which is produced in the same plant.

CTC is produced by the reaction between Dichloropropane (DCP) and chlorine to form CTC and PCE. The reaction is initiated with propylene, then removed and substituted with DCP, a process modified because of the highly exothermic nature of the reaction between propylene and chlorine. Oltchim produces both DCP and chlorine in-house.

EXECUTIVE SUMMARY

BACKGROUND

1) The Executive Committee entered into an Agreement with Romania, by which the plants producing CTC in Romania will be assisted with funds to meet Romania's international obligations under the Montreal Protocol.

2) The Agreement (UNEP/OzL.Pro/ExCom/47/61 Annex XIII) stipulates the CTC production that is permissible to Romania for specified years and the funding that will be made available for compliance.

3) The cited Agreement uses the term "Maximum annual allowable production of CTC for controlled uses." to describe the CTC production permitted for the country. This stipulates that a maximum production of 170 ODP MT per year is permitted in the years 2006 and 2007 under the cited Agreement for the Romanian CTC Production Sector. Thereafter, the Plant will have to cease CTC production.

4) The disbursement of funds under this Agreement to the beneficiary enterprise is contingent upon independent verification and report of CTC production.

5) In addition, The Executive Committee approved the terminal phase-out management plan for CTC production and consumption for process agent uses in Romania (Decision 50/37). Romania agreed to limit its production and consumption of CTC for use as a process agent to the level indicated below:

   For 2007, 187 ODP tons

   For 2008 and onwards, zero ODP tons

OBJECTIVE OF THE AUDIT

6) To establish the CTC production level of OLTCHIM, Romania for the year 2008 and verify its compliance with the Agreement, UNEP/Ozl.Pro/ExCom/47/61, and to ascertain the steps taken by the plant to cease production of CTC.

VERIFICATION TEAM

The audit was carried out by Ess Jay Consultants who were accompanied by a senior official from UNIDO to ensure the right process under Ex-Com Guidelines was followed.

ODS PRODUCTION IN OLTCHIM

7) The OLTCHIM Plant has one ODS production unit. It was founded in 1966 to manufacture caustic soda and chlorine by electrolysis of brine. The production of chlorinated solvents using chlorine started in 1974. The CTC production plant was started in 1972 and upgraded in 1998. The company is a large chemical conglomerate and has about 4,000 employees.

At the time of the audit on 6th and 7th July 2009, the plant was not operating; the Management had decided to permanently cease production of CTC from 13th March 2007.

SUMMARY OUTCOME OF AUDIT

8) The plant produces the following ODS: Carbon tetrachloride (CTC).

9) The company also produces Diethylhexylperoxycarbonate (DEHPC) in which CTC is used as a process agent. DEHPC is used as polymerization initiator for PVC production. The use of CTC in the production of DEHPC was accepted under Decision XVII/6 item no.36 of the list of use of control substances as process agent use. The production and consumption of CTC for this application is now controlled by the ExCom Decision related to the terminal phase-out plan for CTC production and consumption for process agent uses (Decision 50/37).

10) The field verification of 2008 CTC production at OLTCHIM factory confirms the production, inventory and sales data submitted by the Plant in response to the Ex-Com questionnaire.

11) OLTCHIM has produced **NIL MT** (Nil ODP tons**)** of CTC in the current audit period (2008).

   a) The plant has used **82.892** tons of CTC for the production of DEHPC from the stocks of 2007 that is a permitted use of CTC.

   b) The balance quantity of CTC was verified as **NIL** tons as on 7th July 2009.

12) They have used the CTC for the production of DEHPC with the remaining stock of CTC in the year 2008 and there is NIL stock of CTC as on the date of the audit.

[Auditor's Note:]

1. Auditors found that overall CTC production in Romania is in compliance with the limits set out for 2008. Gross production of CTC in 2008 is NIL MT. Out of which 18 MT was incinerated and 145.408 was used for manufacturing of DEHPC (a permitted PA use) and therefore net production of CTC is 31.492 MT (Table 2). Closing stock at country level is 255.292 MT out of which CTC at Chimcomplex (174.2 MT) is to be incinerated.

Table 1: Annual production data

	Item	Data	Remarks
A	Maximum annual allowable Production of CTC for controlled uses for 2008 (MT) for Romania	NIL	Decision 50/37
A'	Maximum annual allowable Production of CTC for process agent uses for 2008 (MT) for Romania	Nil	
B	Gross Production 2008 (MT)	Nil	
C	CTC used for manufacture of DEHPC (MT)	82.892	(C) Actual use permitted under Decision XVII/6 and Decision 50/37
D	Production to be accounted against Agreement (A above)	N.A	
E	Opening Stock as of 1st January 2008 (MT)	82.892	Inclusive of the 30.592 MT opening stock of CTC in the DEHPC plant
F	Other additions during the year	Nil	
G	Total opening stock as of 1st January 2008(MT)	82.892	(E+F)
H	Gross production 2008 (MT)	NIL	(B)
I	Filling & other losses (-)/ Surplus(+)*(MT)	NA	Losses are accounted as part of gross production and adjusted against Max. annual allowable production
J	Net production (MT)	Nil	Gross Production minus losses minus permitted use (B-I-C)
K	Domestic Sales (MT)	82.892	Internal Consumption
L	Export sales (MT)	NIL	
M	Total sales (MT)	82.892	(K+L)
N	Closing stock 2008(MT)	Nil	Opening stock plus net production minus sales. (G+J-M)

Table 2: Summary of Production and Consumption of CTC in Romania - 2008

MT

	Item	Oltchim plant	Chimcomplex plant* (Mixture containing CTC)
A	Opening Stock of CTC as of 1st January 2008(MT)	82.892	512
B	Gross Production of CTC in 2008 (MT)	Nil	149
C	CTC Mixture incinerated(MT)	-	151.50
D	CTC used for permitted use	82.892	-
E	Net production (B-C)	0	-2.5
F	Closing stock as on 31st December, 2008 (MT) (A+E)	Nil	509.50

DETAILED REPORT ON THE AUDIT

AUDIT TEAM, DATES OF SITE AUDIT, BROAD VERIFICATION STEPS

13) The audit was undertaken in line with the Guidelines of Executive Committee for verification of ODS production phase out (UNEP/Ozl.Pro/ExCom/32/33, dated 24th October 2000).

Site audit team:

14) Ess Jay Consultants:

i) V. K. Trehan, Engineer: Technical expert;

ii) Hitesh Mahajan, Chartered Accountant, Financial Expert

15) The following person from UNIDO accompanied the audit team to ensure that the right process was conducted in terms of Ex-Com Guidelines for verification of CTC production phase-out and the Agreement:

i) Arinda Cadariu, Consultant, UNIDO

16) Dates of audit: The Audit was undertaken on 6th and 7th July, 2009 (two days on site).

17) UNIDO prepared a Terms of Reference for the verification mission. The Auditor was selected according to UNIDO's financial rules and based on the Terms of Reference.

Broad methodology adopted for audit:

18) Prior to the field visit UNIDO made available to the selected Auditor the Production Sector Closure Agreement, project proposal submitted to Ex-Com, the results and data of the previous audit, the baseline information and annual data reported by the enterprise.

19) OLTCHIM duly completed the Questionnaire prepared by UNIDO and Ess Jay Consultants in line with UNIDO TORs and returned it to the auditors prior to the site inspection.

20) During the site visit, the enterprise made available to the team of auditors the services of required managers and experts who answered all queries in an open and professional way. Access was provided to all premises of the Plant and to all documents, daily production logs, records requested by the auditors for the purpose of the audit and validation of the data provided by the Plant in the Questionnaire.

21) A round of the Plant was taken for precise understanding of operations and record keeping. The system of measurement for issues, production, sales and closing stock were reviewed. The following operational and statutory records for the year 2008 were examined:

a) Daily production logs and production records;

b) Inventory level records

c) Process parameters records of DEHPC plant;

d) Stock register in value as per books of accounts for the year 2008 to check the closing stock;

e) Stock transfer documents;

22) The verification of the data provided by the enterprise was carried out as follows. .

f) Volume of closing stock was verified;

g) Stock transfer documents were checked;

VERIFICATION OF PLANT RECORDS AND PROCESS ADOPTED

a. Overview of plant and its production activities

23) Plant visit was taken for precise understanding of operations and record keeping in various Departments.

24) The overall method of record keeping is found satisfactory. Entries in books of account are matching with the plant record that was ascertained through random verification.

25) During the Plant visit it was found that the distillation column being used for CTC was in dismantled condition and the plant was decontaminated and not in operation throughout the year. The plant condition was same as of last year.

26) Manufacturing Process: Propylene and Chlorine are fed in 2 reactors in series to produce carbon tetrachloride (CTC) and perchloroethylene. Hydrochloric acid is produced as a by-product. Purification of the products is done in the upstream process. The company has produced Nil CTC by 100% recycling and changing the process parameters, which were verified by the audit team. Propylene is purchased in Romania but being used for

production of other products also. Chlorine comes from Caustic Chlorine plant through pipeline and has usage in other area. Dichloropropane (DCP), the product from the other plant is also used for production of perchloroethylene and Carbon Tetra Chloride.

27) The plant manufacturing DEHPC was audited in detail.

b. 2008 Opening Stock Verification

28) The closing stock of December 2007 was verified for CTC based on Ess Jay Consultants report of the year 2008. The same was also verified through the audited financial statements of the organization. A copy of the consolidated statement is attached as **Annexure 1.**

Table 2: Opening stock at 1 January 2008

Opening Inventory of CTC	82.892 MT

c. 2008 Raw Material (RM) Procurement Verification

29) The company has purchased raw material, propylene during the year 2008 but it was used as raw material for products other than CTC.

d. CTC Production and consumption verification:

30) The production of CTC during the year 2008 is NIL. This was cross-checked with the accounting records. The daily production log sheet for January, September and December 2008 were checked on random basis for consumption of CTC in the DEHPC plant. **Annexure A**. The consumption of CTC for DEHPC plant is also checked in financial records and the same are attached as **Annexure 2**

31) Verification of process parameters in plant logbook and quality laboratory logbooks was made to verify production and consumption of CTC.

32) As DEHPC plant is very small in comparison to total set up. The daily production log books are only estimate but accurate readings come from monthly data provided to auditor.

e. Sales and Closing stock Verification:

32) Physical Verification of CTC stock (NIL MT) done on 7th July 2009 and found the same to be matching with their records.

33) The VAT returns for the period January, September and December 2008 were checked and the same are attached as **Annexure 3.**

34) CTC Tank FB8/1 in main plant was empty.

35) No Sample testing of CTC was done as there was no stock of CTC in the plant.

CESSATION OF CTC PRODUCTION

36) The Agreement between the Executive Committee and the Government of Romania pertaining to the CTC producer has two major stipulations:

a) The 'maximum annual allowable production level agreed for Romania is 170 ODP Tons (CTC 154.54 MT) for controlled use.

b) This quantity of yearly CTC production is permitted till 2007.

c) The Government agreed to limit its production and consumption of CTC for use as a process agent to the level of NIL ODP tons for the year 2008.

36) The results of this audit show that the OLTCHIM plant in Romania has produced Nil MT of CTC in 2008 and has used 82.892 tons in 2008 for manufacture of DEHPC which is a recognized use of CTC for a process agent application under Decision XVII/6 item no 36. The net production of CTC at OLTCHIM is therefore Nil MT for the year 2008.

37) As per Oltchim records, from the available CTC stock of 82.892 MT, has been used for the production of DEHPC. This Management does not plan to continue with the production of DEHPC at this plant with CTC as a process agent, any more. Production of DEHPC by a process using a substitute for CTC is proposed to be carried out in a new plant, for which they have already obtained project approval by the Ex Com. Till the new project is implemented they plan to purchase DEHPC from outside for their plant. In the year 2008, they have purchased 20 MT of DEHPC from outside for manufacturing of PVC. The purchase verification documents from plant and financials are attached as **Annexure B**.

38) The production of DEHPC for the year 2008 was also verified. The reports of the year are enclosed as **Annexure C.**

39) The consumption of DEHPC produced in OLTCHIM for the year 2008 and transferred to PVC plant was also verified. The reports are enclosed as **Annexure D.**

PARTICULARS	KGS.
Opening Stock as on January 01, 2008	2,817
Production	73,170
Consumption	75,987
Closing Stock as on December 31, 2008	NIL

40) The report sent to local environmental agency and UNIDO for the year 2008 is attached as **Annexure E**

41) On the basis of the physical verification and discussion with the management of Oltchim, we confirm that it is not possible to produce CTC from the existing plant without modification.

42) At the time of plant visit it was found that there was no further removal of equipments from the CTC plant as reported in ESS JAY Consultants report of 2008. The plant was in a decontaminated state and not being used to produce PCE.

43) The manholes and the equipments of DEHPC plant were also found in empty and decontaminated state.

RECOMMENDATION:

44) Perform yearly audits in the future to check and confirm:

a) Removal of CTC instruments from the main control room and thereafter total dismantling of the CTC Plant

b) Total dismantling of the existing DEHPC Plant using CTC

c) Check changes carried out in the plant, equipment additions, modifications, etc. to confirm full compliance.

d) Audit purchase of DEHPC for the production of PVC until a 'new process' plant is installed.

e) Verification whether any CTC purchase was made during the audit year.

The above verification needs to be carried out from both financial and technical perspectives.

EXECUTIVE COMMITTEE FORMATS & COMMENTS

e) The Formats as given in Doc No 32/33 dated 24 October 2000 were filled and submitted by the plant prior to the physical verification and were verified at the time of site audit.

Major observations:
(Ex-Com Forms 1 to 6 are annexed)

a. Against the Capacity of 18,000 tons in the baseline year and production of 9,069 tons in the baseline year, the plant has reduced production of CTC to Nil tons in 2008 (Ex-Com form 2)

b. In the year 2008, the plant has used 82.892 tons of CTC for the manufacture of DEHPC, which is accepted by the meeting of Parties as process agent use under Decision XVII/6. Further, it can be observed that there has been no sale of CTC in the year 2008.

c. The plant at OLTCHIM produces both CTC and PCE. It is seen that OLTCHIM has not operated the plant for production of CTC after March 2007 and for production of PCE after 8th August 2007 to date of verification. (Ex-Com form 5).

Attachment 1

a. Check list of the audit with the TORs given by UNIDO

	TOR	Ess Jay Consultants verification
1	Verification of dismantling of CTC production lines is done and rendered unusable for future CTC production and are disposed of.	Bottom of CTC columns and interconnecting pipelines were removed
2	Review of dismantling of two distillation columns to purify CTC	One distillation column related to CTC production has been removed. The other will be removed as soon as an alternative use for the column is found in the plant complex.
3	Review of utilization of dismantled distillation columns	The dismantled column has been installed in the DCP plant after packing and other changes and with new condensers.
4	Review of dismantling of the other equipment related to CTC production such as reactor, receiver tanks, control and monitoring instruments.	Management has no plans to use the remaining equipment.
5	Review the use of CTC in stock at the PCE / CTC plant as well as at the plants of CFA and DEHPC using CTC as process agent.	N.A
6	Review of their depletion plan of CTC	There is NIL stock of CTC in the plant on the date of verification
7	Review of financial records related to the closure of entire CTC production such as purchase of equipment, disposal of scrap and others.	Verified on random basis and found no such transactions

Attachment 2

a. Check list of the audit process with the Guideline

	Verification steps	Check by Ess Jay Consultants	Ess Jay Consultants Documents checked
1	Confirm production and raw material consumption from production logs	Done	Production logs and financial records (stock records, etc.). Only records on monthly basis were available in DEHPC plant.
2	Verify sales and procurement of ODS products against financial records	Done	No sale of CTC made during the year
3	Verify stock at the beginning and the end of year against financial records	Done	Ess Jay Consultants report for 2008 and audited financial statements of the company

b. Steps included in the audit

	Verification steps	Check by Ess Jay Consultants	Ess Jay Consultants observation
1	Review system of record for adequacy	Done	Record keeping is good
2	Observe plant condition and apparent operational status	Done	Distillation column for CTC production is dismantled. Complete plant has been decontaminated.
3	Audit daily production records and key feedstock consumption data	Done	Daily production records were checked on random basis. However, only monthly records were found to be reliable.
4	Confirm monthly and annual production Production = sales - change in inventory	Done	Matches
5	Confirm cumulative inventory change of ODS product corresponds to annual production	Done	Checked and found correct as per above report

	Verification steps	Check by Ess Jay Consultants	Ess Jay Consultants observation
6	Compare the changes in reported feed and product tank levels, integrated with the appropriate correction factor to report raw material usage and CTC production	Done	Checked and found correct
7	On a spot basis, rationalize hourly plant logs with raw material consumption and production.	Done	Not Available
8	Review daily production logs to verify non-production	Done	Verified
9	Monthly VAT returns made by plant were audited	Done	No Sale of CTC was made during the year
10	Report closure activity plans and ascertain measures to be taken by the plant to sustain closure	Done	Given in the report

c. Steps taken in addition to the requirements of the Guideline

11	Sampling for analysis CTC	Not Done	No stock of CTC in the plant

List of Annexure:

Financial Audit Annexure

Annexure 1 Opening Stock records and balance sheet excerpts

Annexure 2 Consumption of CTC in DEHPC plant

Annexure 3 VAT Returns for the months January, September & December 2008

Technical Audit Annexure

Annexure A Consumption of CTC in DEHPC plant

Annexure B Invoice of DEHPC purchase and stock

Annexure C DEHPC production

Annexure D DEHPC stock records

Annexure E Report made by plant to local environmental agency

Data collection formats for cessation of ODS production
in Oltchim plant, Romania

Ex-Com Form 1

A. Plant identification

Name of enterprise:	S.C.OLTCHIM S.A.
Plant reference number:	
Sector plan number:	
Address of the plant:	Uzinei Street no. 1
Contact person(s) and functional title:	
Telephone number:	00 40 250 701200
Fax number:	00 40 250 735030
E-mail address:	protectiamediului@oltchim.ro

B. Verification

Team composition:	1. Ess Jay Consultants (EJC), 2. UNIDO, 3. Government of Romania
Leader:	From the PLANT
Name:	GEORGESCU CRISTIAN
Functional title:	PRODUCTION MANAGER
Members:	MARIA CAMELIA, BADOI, CRISTIANA
Name:	V K Trehan,
Functional title:	Technical Expert, EJC
Name:	Hitesh Mahajan
Functional title:	Financial Expert, EJC
Name:	
Functional title:	
Date of plant visit:	7th July 2009
Duration of visit:	2 Days
Date of Audit:	6th & 7th July 2009

Plant History (Production of ODS)

S No	ODS Products	No of lines	Capacity baseline year [1]	Baseline year (avg)**	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008
1	Carbon tetra chloride (CTC)	1	18,000	9068.9	4,241	2,617	10,133	9,722	12750.7	4,734	1,680	1,058	181.82	160	230	0	154	0
2	Raw material production[3]																	
	Dichloropropane		0	-	0	0	0	0	0	0	1850.46	3549	6384	7879	13479	0	10730,0	0
	Chlorine for CTC		-	-	7633.8	4736.77	17631.42	16916.28	21676.19	7905.78	3220.6	2031.36	318.54	285.59	411.01	0	238,7	0
3	Other Products																	
			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Ex-Com Form 3

Annual CTC quotas, production, sales and stocks since the baseline year

Carbon tetrachloride	Baseline year (avg. 98-00)	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008
Quota															
Opening stock at beginning of year		3,376.73	1,406.37	1,564.96	1,102.46	1,664.62	948.76	429.66	160.72	28.51	81.67	57.70	167,90	64,2	52,3
Production	9,068.90	4,241.00	2,617.00	10,133.00	9,722.00	12,750.70	4,734.00	1,680.00	1,058.00	181.82	160.00	230.00	0	154	0
Purchases		-	-	-	-	-	-	-	-	-	-	-	-	-	-
Sales / transfer for process reagent		6,091.77	2,395.07	10,523.50	9,089.85	13,411.56	5,057.40	1,805.24	1,110.98	14.28	183.97	119.80	103,7	165,9	52,3
Loss (Surplus)		-	-	-	-	-	-	-	-	-	-	-	-	-	-
Closing stock at end of year		1,406.37	1,564.96	1,102.46	1,664.62	948.76	429.66	160.72	28.51	81.67	57.70	167.90	64,2	52.3	0

(Contd.)

Annual CTC quotas, production, sales and stocks since the baseline year

DEHPC / CTC Mixture	Baseline year (avg. 98-00)	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008
Quota (CTC)															
Opening stock at beginning of year (CTC)					-	-	0.70	-	-	-	-	35.49	45,79	10,1	30,592
Production (DEHPC + CTC)		20.30	50.00	48.80	46.20	20.53	47.08	47.17	58.10	62.74	86.70	90,9	101,1	113,7	73,17
CTC Component in mixture					35.05	23.36	72.75	63.28	80.50	85.12	183.97	109,5	139,39	145,408	82,892
Purchases / transfer as process reagent					35.05	24.06	72.05	63.28	80.50	85.12	183.97	119.80	103,7	165,9	52,3
Sales DEHPC for PVC					-	14.83	47.78	46.24	59.00	62.38	86.11	91,31	100,789	112,944	76,035
Loss (Surplus)					-	-	-	-	-	-	-	-	-	-	-
Closing stock (DEHPC+CTC) at end of year					-	0.70	-	-	-	-	35.49	45,79	10,1*	30,592*	0

* - represent closing stock of CTC from DEHPC plant

Annual RM to ODS ratios

CTC	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008
DCP / CTC ratio	-	-	-	-	-	-	0.35	0.35	0.343	0.35	0.35	-	0,5	-
Propylene / CTC ratio	0.145	0.150	0.135	0.135	0.118	0.110	0.15	0.10	0.0588	0.0675	0.04	-	0	-
Methane / CTC ratio -thousand Nmc/t CTC	0.002	0.002	0.0016	0.0016	0.00051	0.0003	0.0010	0.0005	0.000588	0.0006	0.0006	-	0,0006	-
Chlorine / CTC ratio	1.800	1.810	1.740	1.740	1.700	1.670	1.920	1.919	1.752	1.785	1.787	-	1,55	-

Ex-Com Form 5

Operational days per year

Type of production	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008
CTC	141	86	268	254	283	134	32	38	5	7	13	0	12	0

Ex-Com Form 6

Monthly CTC production and raw material consumption.

CTC production and Dichloropropane (DCP) consumption:

Month	No of operating days	CTC Production	DCP/CTC ratio	DCP opening stock	DCP procured /or added to stock	DCP closing stock
Jan-08	0	0	-	-	-	-
Feb-08	0	0	-	-	-	-
Mar-08	0	0	-	-	-	-
Apr-08	0	0	-	-	-	-
May-08	0	0	-	-	-	-
Jun-08	0	0	-	-	-	-
Jul-08	0	0	-	-	-	-
Aug-08	0	0	-	-	-	-
Sep-08	0	0	-	-	-	-
Oct-08	0	0	-	-	-	-
Nov-08	0	0	-	-	-	-
Dec-08	0	0	-	-	-	-

Ex-Com Form 6 (contd.)

CTC production and Propylene consumption:

Month	No of operating days	CTC Production	Propylene/ CTC ratio	Propylene opening stock	Propylene procured/or added to stock	Propylene closing stock
Jan-08	0	0	-	-	-	-
Feb-08	0	0	-	-	-	-
Mar-08	0	0	-	-	-	-
Apr-08	0	0	-	-	-	-
May-08	0	0	-	-	-	-
Jun-08	0	0	-	-	-	-
Jul-08	0	0	-	-	-	-
Aug-08	0	0	-	-	-	-
Sep-08	0	0	-	-	-	-
Oct-08	0	0	-	-	-	-
Nov-08	0	0	-	-	-	-
Dec-08	0	0	-	-	-	-

Ex-Com Form 6

CTC production and Methane consumption:

Month	No of operating days	CTC Production	Methane /CTC ratio	Methane opening stock	Methane procured/or added to stock thousand Nmc/t	Methane closing stock
Jan-08	0	0	-	-	-	-
Feb-08	0	0	-	-	-	-
Mar-08	0	0	-	-	-	-
Apr-08	0	0	-	-	-	-
May-08	0	0	-	-	-	-
Jun-08	0	0	-	-	-	-
Jul-08	0	0	-	-	-	-
Aug-08	0	0	-	-	-	-
Sep-08	0	0	-	-	-	-
Oct-08	0	0	-	-	-	-
Nov-08	0	0	-	-	-	-
Dec-08	0	0	-	-	-	-

(contd.)

Ex-Com Form 6

CTC production and Chlorine consumption:

Month	No of operating days	CTC Production	Chlorine /CTC ratio	Chlorine opening stock	Chlorine procured/or added to stock	Chlorine closing stock
Jan-08	0	0	-	-	-	-
Feb-08	0	0	-	-	-	-
Mar-08	0	0	-	-	-	-
Apr-08	0	0	-	-	-	-
May-08	0	0	-	-	-	-
Jun-08	0	0	-	-	-	-
Jul-08	0	0	-	-	-	-
Aug-08	0	0	-	-	-	-
Sep-08	0	0	-	-	-	-
Oct-08	0	0	-	-	-	-
Nov-08	0	0	-	-	-	-
Dec-08	0	0	-	-	-	-

Questionnaire for Oltchim

1. Amount of CTC consumed:
2. The purpose for which CTC is used:
3. Amount of DHEPC produced using CTC:
4. Amount of CTC sold:
5. Present stock of CTC:

Document to be kept ready for verification at the time of site audit:

1. Record of any raw material purchased and issued to the plant for CTC production
2. Invoices of the raw material purchased
3. Operation log-book
4. Record of CTC production ,purchase and sale
5. Log record of DEHPC production
6. Record of CTC used for DEHPC production
7. Record of closing stock of CTC
8. VAT returns filed with the government
9. Audited financial report for 2008