

FONDOIN

FONDO DE RECONVERSION INDUSTRIAL, Venezuela

**Strategy Plan of CFC-11 Phase-out from the
Foam Sector of Venezuela**

Executive Summary

Caracas, 2002

Executive Summary

The strategy plan has been designed according to the Decisions 34/58 of the ExCom to facilitate planning, formulation and implementation of the investment program to phase-out CFC-11 from the remaining group of enterprises of the foam sector of Venezuela by replacing it with HCFC-141b in a timely and cost-effective manner.

“The Government of Venezuela has been requested to submit a status report of the foam sector indicating the current consumption of ODS, progress of the phase-out of ODS and a plan to complete the phase-out of the remaining consumption in the sector as a prerequisite for further funding of projects in the foam sector.”

To the end of 2000, 13 projects including one umbrella project had been approved for Venezuela in the foam sector. Nine of the projects had been completed to phase-out 139.4 ODP tones, while four projects for phase out 132.2 ODP tones were still under implementation. The Table below provides a profile of the foam sector.

Status of the Foam Sector as of end of 2000

CFC11 Consumption in 2000 (ODP tones)	505
CFC11 Consumption of enterprises established after July 1995 and insulation foam for the refrigeration sector (ODP tones)	146.3
CFC11 Consumption of 27 small enterprises established before 1995 (ODP tones)	35.7
CFC11 Consumption of enterprises eligible for funding (ODP tones)	323
CFC11 Consumption approved to be phased out but not yet implemented (ODP tones)	132.2
CFC11 Consumption approved to be funded (ODP tones)	190.8
Number of eligible enterprises	23
Estimated cost of funding remaining eligible enterprises: two umbrellas and Enveta (US \$)	1,251,607
Cost-effectiveness (US \$/kg) average for two umbrellas and Enveta	6.2
Estimated cost for terminal project (US \$)	423,500
Cost-effectiveness (US \$/kg) for terminal project	11.9

1. The background information by sector and baseline data reflected in the strategy plan are based on the latest data collected by the team of national experts under coordination of FONDOIN by means of technical inspection and general audit of each factory included in the program as well as by contacting national independent sources of information and data concerning the issue.
2. Brief description of sector and remaining group.

The remaining group of enterprises is manufacturing the following products and components:

- Insulation components for cold transportation;
- Components and elements for construction of cold storages;

- Insulation panels for civil and industrial construction;
- Portable cold boxed for food;
- Components for furniture industry;
- On-spot spray insulation for construction and food industries;
- Cold display units.

Depending upon the production programs and CFC-11 consumption, the enterprises are equipped with foaming machines from DECKER, SAIP and other producers with output 40-60 Kg/min or spray foam units from GLAS-CRAFT, GUSMER and locally made with output 6-20 Kg/min. Some of the small enterprises are using self-made mixing and pouring equipment.

The number and type of existing equipment, along with the current CFC-11 consumption, are indicated in the list of remaining enterprises (see Tables 1 and 2)

3. The cost of the program comprising three projects included in the strategy plan has been estimated based on technical and commercial data of similar projects recently approved for Venezuela and other regions.

The incremental capital cost of these projects was estimated based on the ICC of conversion of individual enterprises.

The incremental operating cost has also been calculated for the individual enterprises based on the difference in the annual consumptions and costs of CFC-11 and HCFC-141b respectively and bearing in mind an unavoidable increase of polyol consumption by the converted enterprises.

There is a terminal project for 27 very small enterprises, which should be considered separately because it has special characteristics and importance.

Note:

- a. *The lists and baseline data for each project will be updated before the projects formulations and submission.*
- b. *The projects' budgets indicated in the document will be re-estimated on a project-by-project basis in light of the relevant developments, decisions and guidance documents to be available before formulation.*

4. The proposed strategy plan includes the following investment projects:

- 4.1 Phasing-out of 91 ODP tons of CFC-11 from manufacturing of rigid PU foam at 11 enterprises (umbrella project).
 - Estimated project budget: US\$ 560,450
 - Estimated cost-effectiveness 6.16 US\$/Kg
 - Planned submission – end 2002
 - Planned completion – end 2004

- 4.2 Phasing-out of 67.8 ODP tons of CFC-11 from manufacturing of rigid PU foams at 11 enterprises (technical project)
- Estimated project budget: US\$ 492,275
 - Estimated cost-effectiveness: US\$ 7.26
 - Planned submission time: mid 2003
 - Planned completion time: mid 2005
- 4.3 Beyond the strategy projects there is an individual project already prepared to be submitted to the ExCom, that is Enveta. Enveta is in the sub-sector of flexible PU foam; 32 ODP tons will be phased out with this project, its cost is US \$198,882 and the cost-effectiveness is 6.2 US \$/kg. Planned submission beginning in 2002. Planned completion in 2003.
- 4.4 A terminal project for 27 small enterprises has been included. Their individual consumptions are below 3 ODP tons and their whole consumption is 35.7 ODP tons. For 16 of them it could be possible to retrofit the foam machines, but the other 11 work manually. The cost-effectiveness for buying the cheaper and smaller foam machine in the market is higher than the limit for PU rigid foam investment projects. Nevertheless, the Government of Venezuela has to have a solution for this group phasing-out CFC11 consumption before 2005.

The cost of this project is US \$ 423,500, to phase out 35.7 ODP tons; the cost-effectiveness is 11.86 US \$/kg.

5. The issue of industrial rationalization

The subject was thoroughly investigated by FONDOIN in light of possible technical, commercial and social impacts of such process. However, in spite of possible advantages, in the current conditions of Venezuela's closure or consolidation (for enlargement) of private enterprises is not feasible and might cause negative social impact.

6. Legislation and policy matters

Due to the various reasons and constrains some inconsistency between the data on ODS consumption and reporting has occurred. It is the Government's responsibility and commitment vis-à-vis the Montreal Protocol to elaborate and implement and enforce the respective regulations to control export-import and consumption of ODS to achieve the phase-out target time. Therefore, FONDOIN and the governmental bodies concerned are in process of elaborating the documentation to avoid future inconsistencies between actual and reporting data. Also, the enforcement of the regulation should be improved; however, it is necessary an awareness program to inform about the official policy on the protection of the ozone layer, elimination of ODS consumption and the assistance to enterprises for the compliance of national regulations with the cooperation of the Multilateral Fund.

Table N° 1. Summary of list of companies using CFC-11

N°	Projects	ODP (Ton)	Established Year	Equipment	Capacity (Kg/min)	Sub-Sector / Activity
1	Alza Astilleros	0.80	1986	L.P machine	-----	Cool stores
2	Cabicar	4.00	1984	Manual	-----	Cool stores
3	Carrocería Ureña	1.00	1993	Gusmer	6	Car industry
4	Carrocería Andina	0.30	1978	Glass-Craft	7	Car industry
5	Corporación Lilly	4.60	1965	Saip	-----	Handcraft
6	Deincopa	0.40	1962	Cannon	-----	Cool stores
7	Dureca	1.80	1982	Manual	-----	Cool stores
8	Enveta (*)	32.00	1978	Elastogram Elastogram Decker	50 50 21	Car industry
9	Extrametal	2.20	1970	COSMCC	20	Cool stores
10	Fanabus	2.40	1986	Glass-Craft	7	Car industry
11	Fanametal	13.00	1990	Saip	-----	Construction
12	Firecon	12.00	1995	Decker	40	Cool stores
13	Frimetal	1.00	1974	L.P machine	-----	Cool stores
14	Gamma	1.60	1980	Gusmer	6	Construction
15	Intercar	0.20	1992	Gusmer	6	Car industry
16	J,F y Asociados	12.00	1985	Glass-Craft Glass-Craft Glass-Craft	7 7 7	Construction
17	Medina Plásticos	13.00	1985	Gusmer Gusmer	6 6	Cool stores
18	Ofc. Técnica Calas	17.00	1987	Gusmer Gusmer	6 12	Construction
19	Polimeros Industriales	2.60	1979	Decker Decaer	4 4	Food industry
20	Prointer	1.60	1972	Decaer Gusmer	30 6	Car industry
21	Quooler	4.20	1988	Gusmer	20	Cool stores
22	Redupeca	0.90	1994	Manual	-----	Cool stores
23	Mercantil Speca	1.60	1981	Decker	15	Cool stores
Sub-total		130.20				

* The only factory (ENVETA), included in the plan which is manufacturing moulded flexible PU foams (car seats) is also remaining. The project proposal for this factory has already been prepared and submitted by UNIDO in 2001 and discussed in general with the MLF Secretariat.

Table N°. 2. Summary of list of companies using CFC-11

N°.	Projects	ODP (Ton)	Established year	Equipment	Capacity (Kg/min)	Activity
1	Aislantes Ind.	4.00	1980	Manual	-----	Insulation
2	Air Gomez	6.00	1985	Decker Gusmer	30 6	Insulation
3	Cervecería Modelo	0.60	1965	Hennecke	30	Food industry
4	Cofrío	0.40	1986	Manual	-----	Cool store
5	Ebano	0.50	1990	Manual	-----	Handcraft
6	Fibro Steel	16.00	1986	OMS	100	Panels
7	Fibrepoxi	4.30	1969	Decker Decker	30 50	Cool store
8	Fibrocaven	4.10	1986	Decker Decker	15 30	Cool store
9	Grupo Celta	8.00	1987	Manual	-----	Insulation
10	Ind. Mitani	4.00	1989	Manual	-----	Handcraft
11	Ind. Ter. Cavas Ind.	1.80	1988	Manual	-----	Panels
12	Inyectorfibras	4.50	1977	Manual	-----	Cool store
13	Luvitec	1.00	1991	Manual	-----	Construction
14	Mercantil Sol Aire	1.70	1993	Manual	-----	Cool store
15	Metal Nueva Cadiz	1,00	1990	Glass Kraft	7	Cool store
16	Polifibras	2.40	1989	Gusmer	10	Insulation
17	Refr. Martinez	1.00	1990	Manual	18	Cool store
18	Refr. Rodriguez	4.20	1988	Manual	-----	Cool store
19	Refricentro	2.00	1982	Decker	18	Cool store
20	Sandrin	4.00	1968	Cannon	30	Cool store
21	Siherna	1.50	1995	Manual	-----	Cool store
22	Sudameris	4.10	1974	Manual	-----	Cool store
23	Talleres Carabobo	4.50	1972	Decker Decker	16 40	Cool store
24	Talleres Martini	4.00	1980	Decker	15	Cool store
25	Talleres Roa	7.30	1993	DEC-R-Fronth	8	Insulation
26	Thermoaislantes	2.40	1990	Gusmer	6	Insulation
27	Wal Flex	1.00	1989	Manual	-----	Insulation
Sub- total		96.30				
Total		226.50				