



TOGETHER
for a sustainable future

OCCASION

This publication has been made available to the public on the occasion of the 50th anniversary of the United Nations Industrial Development Organisation.



TOGETHER
for a sustainable future

DISCLAIMER

This document has been produced without formal United Nations editing. The designations employed and the presentation of the material in this document do not imply the expression of any opinion whatsoever on the part of the Secretariat of the United Nations Industrial Development Organization (UNIDO) concerning the legal status of any country, territory, city or area or of its authorities, or concerning the delimitation of its frontiers or boundaries, or its economic system or degree of development. Designations such as “developed”, “industrialized” and “developing” are intended for statistical convenience and do not necessarily express a judgment about the stage reached by a particular country or area in the development process. Mention of firm names or commercial products does not constitute an endorsement by UNIDO.

FAIR USE POLICY

Any part of this publication may be quoted and referenced for educational and research purposes without additional permission from UNIDO. However, those who make use of quoting and referencing this publication are requested to follow the Fair Use Policy of giving due credit to UNIDO.

CONTACT

Please contact publications@unido.org for further information concerning UNIDO publications.

For more information about UNIDO, please visit us at www.unido.org

Solvent Sectoral Survey Rerport
In the Islamic Republic of Iran

Prepared by Sahandmina Engineering Co. Ltd. for
UNIDO in cooperation with Ozone Unit
July 2003

Table of Contents:

Chapter I: Introduction

- | | |
|---|--------|
| 1- General Background | Page 2 |
| 2- History of ODS phase out | Page 3 |
| 3- Methodology of Solvent Sector Survey in Iran | Page 5 |
| 4- Objective of the Solvent Survey in Iran | Page 8 |

Chapter II: Solvent Consumption

- | | |
|--|---------|
| 1- Solvent Background in Iran | Page 10 |
| 2- Solvent sources of Supply | Page 10 |
| 3- Solvent users in Iran | Page 11 |
| 4- Major Application of CTC and TCA | Page 11 |
| 5- CTC, TCA, and CFCs consumption in year 2002
In I.R. Iran in different Sub – Segments | Page 13 |

Chapter III: Policy Framework

- | | |
|----------------------------|---------|
| 1- Institutional Framework | Page 14 |
| 2- Relevant Regulations | Page 16 |
| 3- Phase out Schedule | Page 16 |

Chapter IV: Current Status

- | | |
|---|---------|
| 1- Solvent Sector | Page 17 |
| 2- Current Status of Solvent Industry Segment in Iran | Page 19 |
| 3- Process Agent Industries | Page 26 |

- | | | |
|-------------------|---|---------|
| Annex I | List of Solvent Suppliers, Importers | Page 28 |
| Annex II | List of Users of Controlled Substances | Page 29 |
| Annex III | Consumption of Process Agent Sector | Page 30 |
| Annex IV | Consumption of CTC, TCA, and CFCs | Page 31 |
| Annex V | List of Identified Industries in Solvent Sector | Page 32 |
| Annex VI | List of Identified Enterprises in Pharmaceutical Sector | Page 39 |
| Annex VII | List of Chemical Agent Distributors in Iran | Page 42 |
| Annex VIII | List of Invoices Received | Page 48 |

Chapter I

Introduction

General Background

The Islamic Republic of Iran ratified both the Vienna Convention for the Protection of the Ozone Layer and the Montreal Protocol on Substances that Deplete the Ozone Layer in October 1990. It has also subsequently ratified the 1990 London Amendment, the 1992 Copenhagen and 1997 the Montreal Amendment of the Montreal Protocol. The Islamic Republic of Iran is classified as a country operating under Article 5 of the Montreal Protocol of Annex A, Group II.

Being only an importer, the Islamic Republic of Iran's consumption level of Annex A, by the end of 2004, Carbon Tetrachloride should be reduced by 85% from 1998-2000 average levels, and Methyl Chloroform reduced by 30% from 1998-2000. Average level of CFCs is to be reduced by 50% from 1995-1997 average level on the first January 2005.

The Islamic Republic of Iran has had a remarkable role and achievement in phasing out CFC in Refrigeration and Foam Sector, to comply with the schedule of the Montreal Protocol and complies so far with the obligations of the Montreal Protocol and its subsequent Amendments.

The Islamic Republic of Iran schedules their annual consumption of Annex A Group II substances (CTC, TCA, and CFCs)

The I.R. of Iran has been among the most active Article 5 countries in ratifying and enforcing the Vienna Convention, the Montreal Protocol and its amendments. The overview below illustrates the ratification dates and the dates of legal enforcement.

Convention/Protocol/ Amendment	Ratification/ Acceptance	Legal enforcement
Vienna Convention	3 October 1990	8 January 1991
Montreal Protocol	10 October 1990	8 January 1991
London Amendment	8 August 1997	7 November 1997
Copenhagen Amendment	8 August 1997	7 November 1997
Montreal Amendment	8 October 1997	7 January 1998
Beijing Amendment	-----	-----

Table 1.1: Ratification dates and the dates of legal enforcement

Source: Country Program Update; Draft Report July 2003

History of ODS phase-out

The first obligatory reporting by Iran to the MF was 4,750 ODP MT in 1991. During the preparation of the country program the future demand projection until 2002 was based on

an average annual industrial growth rate of 6,5 % after three years of strong growth in line. Thus, the projected demand for 2002 was 7923 ODP T.

1993	1994	1995	1996	1997	1998	1999	2000	2001	2002
4495	4787	5098	5430	5783	6159	6559	6985	7439	7923

Table 1.2: Future demand projection

The reconstruction period after the Iran-Iraq war (1989) was initiated with the first 5-year-plan. The high economic growth rate of 11.7 % in 1990/1991 declined to -1.0 % at the end of the first 5-year-plan indicating the turning point of the first economic cycle after the war (cf. table 1). The second economic cycle started after the crisis of 1995/1996 again with a strong growth in 1996/1997 followed by a weaker decrease and recession at the end of the nineties. The actual average growth rate has been therefore only 4,8 %.

90/91	91/92	92/93	93/94	94/95	95/96	96/97	97/98	98/99	99/00	00/01	01/02	02/03
11,7	11,4	6,1	2,3	3,0	-1,0	5,2	2,9	1,6	2,4	5,7	4,7	6,0

Table 1.3: I.R. Iran: Gross domestic product (1990/91-2002/03; real change, %), EIU 1996; BfAI 2003

Table 2 shows the production of chemicals, rubber, chemical and plastic products developed with a similar cyclical movement: decline in the first half of the nineties after high imports in 1991/1992 and recovery with the end of the first economic cycle mid of the decade.

Sector/Year	1994	1995	1996	1997	1998	1999	2000
Chemicals and chemical products	2.2	2.8	4.8	5.4	5.7	7.7	13.9
Annual incline	n.a.	27%	71%	13%	6%	35%	81%
Rubber and plastic products	0.6	0.71	1.03	1.22	1.34	1.7	2.05
Annual incline	n.a.	18%	45%	18%	10%	27%	21%

Table 2: I.R. Iran: Manufacturing of selected products (value in 1000 billion Rials), Source: Chamber of Commerce, Iran,

In the post war period of the early 90s, Iran experienced a financial crisis. In 1996 strong oil prices helped to ease that pressure and the inner economy picked up a remarkable growth. The ongoing introduction of economic reforms was accompanied by a strong policy to reduce foreign imports. These economic fluctuations had also an impact on the import of CFC-113, CTC, & TCA, that was needed to satisfy the increased local production. The CFC-113, CTC, & TCA imports (CFC-113, CTC, & TCA consumption) show the same pattern: decline during the first 5-year plan followed by a peak at the beginning of the second economic cycle 1997 with reduced growth rate to the end of the nineties. The high import (consumption) of CFC-113, CTC, & TCA at the beginning of the second economic cycle was stimulated on one hand by the fast growth of the

automotive sector: After a first post-war period of vehicle imports, the Iranian production of motor cars was an important field of industrial recovery (the number of registered vehicles rose from 27.000 in 1989 to 131.000 in 1993 and more than 2.2 millions in 1996). After the import-period the automotive sector was heavily protected from outside competition with high tariffs and quotas making it practically impossible to import foreign vehicles. In this field the import-substitution promoted the import of CFC-113, CTC, & TCA as basic materials for the automotive-industry. Secondly the CFC-113, CTC, & TCA consumption was stimulated by the rapid growth of the (urban) population and their needs (cooling/fridges, simple mattresses, upholstery).

The demand for Solvents resulted in a significant increase of CFC-113, CTC, & TCA, CTC and TCA imports after 1996.

The introduction of new economic reforms by the government aimed at a dramatic increase in local production, reduction of the dependency on imports and the privatization of large industrial complexes in the refrigeration and foam sector. This led finally to the establishment of buy-back projects, which allowed again foreign investments in the country from 1999 onwards. One of the effects was, for example; that the previously government planned and controlled import of chemicals was left to the decision making of the private sector.

The tremendous increase in demand for local products is also reflected in the accelerated increase for CFCs, CTC, & TCA.

From this point of view both the cyclical development of the CFCs, CTC, & TCA imports and their height at the beginning of the second economic cycle are plausible. The peaks at the beginning of the economic cycle reflect as well a certain stock-building of CFCs, CTC, & TCA in anticipation of the stimulating growth of the 5-year plans. By taking the average of the years 1995-1997 as baseline the extremes from crisis and import-climax of the first and second economic cycle are balanced out. During the second cycle the consumer price inflation was somewhat lower than in the first half of the nineties (average of 30% and 20% respectively) giving a certain support to the demand of CFCs, CTC, & TCA.

Methodology of Solvent Sector Survey in Iran

Following steps were taken during survey of solvent sector to collect data to be used for preparation of solvent phase out plan;

- 1- Framework and policy making to collect required data at specified period as set forth by MP, the Government of Iran and UNIDO.
- 2- Plan and organize the activities to achieve goal of the project with cooperation and assistance of implementing elements such as DoE, Ozone Office and UNIDO
- 3- Control and direct the plans and activities with respect to the policy regulation and timeframe set forth by MP, DoE, Ozone Office and UNIDO.
- 4- Employment of the required skills in order to ensure collecting reliable data from ODS users, importers and distributors.
- 5- Orientation and briefing project staffs about goals, scope and objectives of the survey project.

6- Identifying source of data by investigating, searching, collecting, coordinating and communicating with existing source in Iran such as;

- a) DoE, Ozone Unit
- b) Ministry of Industries and Mines
- c) Ministry of Commerce Data Bank
- d) Ministry of Agriculture
- e) I.R. Iran Bureau of Customs
- f) Ministry of Islamic Guidance Film Laboratory Center
- g) I.R.I Radio and Television Film Laboratory Center
- h) Iran Confederation of Chemical Agents Distributors
- i) International Suppliers
- j) Main Importers
- k) Medium and small distributors
- l) Main consumers of ODS chemicals as solvent and process agent
- m) Various industrial sectors directories published by relevant societies and unions such as Food Product Sector, Iranian Society for Refrigeration and Heat Parts, Components and appliance manufacturers such as heat exchangers, condenser, and Evaporator producers.
- n) Iran Compass for textile industries.
- o) Iran Directory for pharmaceutical industries.
- p) Iran Group of Aviation Industries
- q) Ship and Railways industries
- r) Users site survey
- s) Interviewing with chemical experts in the field of solvent sector in order to use their experience for cross checking the identical data obtained from different sources

7- Preparation of work document such as questionnaire forms and relevant document to be filled out by the ODS consumers. The questionnaire form includes several questions to fulfill MP requirement, some of the topics of the questions are summarized as;

- a) Name and address of the ODS user
- b) Type of ODS consumption
- c) Amount of ODS consumption during 1996-2002
- d) Installed capacity
- e) Year of enterprise establishment and production commencement
- f) Type of existing technology for using ODS in their production process line
- g) Enterprise intention to convert the existing production line into Ozone friendly line
- h) Methods of degreasing and use of ODS in production line
- i) Cost of ODS and alternatives
- j) Power Consumption per year
- k) Number and type of machineries used in the production line.

- 8- Direct and indirect communication with the consumers to find out their consumption.
- 9- Selection of the most cooperative consumers with high ODS use for site survey in order to find out the technology and amount of consumption as a reference data for comparing the data received from other identified ODS users
- 10- Site survey of the selected ODS users within the timeframe for preparing the survey report.
- 11- Following up with more than 300 enterprises to receive the completed questionnaire forms.
- 12- Analyzing completed questionnaire forms, which were received from the enterprises.
- 13- Contacting enterprises to insure the correctness of the completed questionnaire forms
- 14- Selection of the eligible enterprises for implementation of ODS phase out plan to fulfill MP requirement; the date of enterprise establishment and type of non ODS consumption were the main reason to delete an enterprise from the eligible list. The identified ODS consumers are listed in Annex I.
- 15- Selection of some high ODS consumers from each sector to be surveyed.
- 16- Accomplishment of site survey at selected and identified ODS users.
- 17- Comparing data collected during site survey with the information received through questionnaire forms.
- 18- Using experience of execution of the only successfully implemented Solvent project in Iran. Irandocharkh CTC phase out project is the only Solvent project implemented in Iran. It phases out 10 MT of CTC in pre-welding degreasing process.
- 19- Verifying the data received through questionnaire forms and site survey with available documents in the factory such as;
 - a) Invoices for procuring ODS within last three years
 - b) Supply Source
 - c) Production Capacity
 - d) Actual Production Level
 - e) Amount Available ODS at the Company Warehouse
 - f) Type of Machineries and Technology used
 - g) Number of employees, etc.
- 20- Categorizing identified ODS users in various Industry Segments such as:
 - a) Aviation Maintenance Industries
 - b) Bicycle and Motor cycle industries
 - c) Car Industries
 - d) Castings
 - e) Chlorinated Rubber Industries
 - f) Dry Cleaning
 - g) Electrical, Electronics, and Telecommunication industries
 - h) Film Cleaning Industries

- i) Food Product Industries
- j) Metal Parts Manufacturing Industries
- k) Machineries Industries
- l) Pharmaceutical Industries
- m) Process Agent Industries
- n) Rail ways maintenance industry
- o) Refrigeration and Heating Industries (Heat Exchangers)
- p) Shipyards and ship maintenance industries
- q) State Owned Industries
- r) Textile industries

- 21- Verifying and comparing the data collected through above procedures, applied against the data collected through completed questionnaires received from identical Industry Segment enterprises in order to ensure minimum error in collecting data.
- 22- Crosschecking the collected data in each Industry Segment with the data received from enterprises not surveyed.
- 23- Crosschecking the cumulative data in each Industry Segment with data received from official sources such as latest data book published by the bureau of Customs every year (year 2002) for importing ODS, to minimize error in cumulative figures.
- 24- Crosschecking the data against the data provided by the Iran Confederation of ODS chemical distributors for Solvent Small Sector Enterprises.
- 25- Crosschecking the cumulative data against data collected from ministry of Commerce.
- 26- 20% data error considered acceptable during data crosschecking against official sources.
- 27- Preparation of current situation of each Industry Segment to be considered as part of survey report.
- 28- Preparation of grand total data for solvent sector in Iran.
- 29- Preparation of Solvent Survey report based on data collected in all solvent Industry Segment under close cooperation and coordination of DoE Ozone Office, to be considered and submitted to MP as part of Solvent National Phase out Plan.

Objective of the Solvent Survey in Iran.

This survey will aim to support and prepare Iran's Country Program Update and Solvent Sector Phase out plan and address the need of Government of Iran to reduce its CTC, TCA, and CFCs consumption level to 15% of its baseline level (average level between 1997-2002) for CTC and 50% CFCs by 1 January 2005 and 70% TCA by 1 January 2010. However, due to complexity of the alternate technology production of co-products, and economic implication of CTC, TCA, and CFCs, a comprehensive strategy cannot be offered at this time.

The CTC, TCA, and CFCs Survey will help the implementing elements to phase out the above-mentioned chemicals in the applications considered as consumption by the

Montreal Protocol. With financial support of the Multilateral Fund, implementation of this plan will allow government of Iran and its industries to reduce their identifiable consumption of ODS chemicals to 15% CTC, 70% TCA and 50% CFCs of the base line within the required deadlines.

To achieve the required consumption reduction of CTC, TCA, and CFCs, phase out plans for CFCs and Solvents will propose a series of activities to be undertaken from 2003. These include timely implementation of new investment and non-investment activities in all sectors, such as metal cleaning, textile, process agent, aviation industries and food product industries etc.

Chapter II

Solvent Consumption

Solvent Background in I.R. Iran

The demand for different types of chemicals such as CFCs, CTC, and TCA as solvent and Process Agent in Iran during first Iranian Five year Development Plan rose gradually from 5150 metric tones to 5921 in year 2002. Iran is a large importer of the CTC and TCA for non feedstock applications. The average amount of different chemicals (CTC, TCA, CFCs) which consumed as solvent, process agent and propellant during the period of 1996 to 2002 is more than (total consumption in 7 years $38846 \div 7=5549$ MT). The demand for CTC, TCA, and CFCs is for consumption in different sectors (Aviation Maintenance field, Textiles, Food Industries, Metal Industries, Pharmaceutical, Process Agent, Aerosol and etc.). CTC and TCA are widely used in metal industries in Iran. Four large Aviation Maintenance and Overhaul Centers, which overhaul large number of different kind of jet engines and fixed and rotary wing aircraft annually consume more than 473 metric tones of CTC and TCA.

In this Survey Report, CTC for use as feedstock has not been considered. Small amounts of CTC and TCA consumption in laboratories were identified.

Average amount of 5921 metric tones of TCA, CTC and CFCs was consumed in 2002 by the process agent industries and the solvent sector in Iran.

The average amount of CTC, and CFCs as process agent during 1997 - 2002 is shown in Annexes I through VII. There are about 700 metric tones of ODS chemicals unaccounted for (as 20% of Declared ODS), being the level of inventory stocks of importers and distributors, which are not included.

According to Official Statistical Book of Foreign Trade Statistics of I.R. Customs Department, which is published every year and this book is used as an official reference, the CTC and TCA importation amount which has been declared as cumulative figure is as follow, The tariff numbers are 2903/19 and 2903/49; the statistical book for year 2002 is not published yet. The Iranian year starts from 21 March each year

Year 2001 (Starting from 21st March for 12 Months) = 1,687,057 Kg. from Germany, Spain, UAE, UK, USA, Italy, Belgium, China, France, Netherlands, India.

Year 2000 (Starting from 21st March for 12 Months) = 1,640,648 Kg. from Germany, Spain, UAE, UK, USA, Italy, Belgium, China, France, Netherlands, India.

Year 1999 (Starting from 21st March for 12 Months) = 1,916,288 Kg. from UAE, UK, Italy, Belgium, China, Japan, France, Netherlands, India. Greece.

Note: The figures above belong mainly to the private sector consumers all imported chemicals (CTC and TCA) by the Governmental Sectors and subjected to exempted facilities established by the government are not included in the above figures.

Solvent sources of Supply

100% of CTC, TCA, and CFCs chemical are imported by;

- 1- Governmental Sector to be consumed in state owned enterprises.
- 2- Directly by end users in different Industries for their own consumption
- 3- Private sector importers to distribute for small industrial consumers

The demands for domestic supply for small industrial consumers are estimated at 20% of total CTC, TCA, and CFCs of country annual consumption.

80% of the remaining consumption is directly imported by or for the Medium and Large consumers.

Based on information provided by ministry of commerce, there are 14 major importers and distributors in Iran, all of them located in Naser Khosro Ave., Tehran. In addition the Federation of Chemical Distributors represents 227 smaller distributors (see Annex VII). The materials are mainly imported from China, France, Germany, Great Britain, India, Netherlands, Russia, Italy Switzerland, Japan, Taiwan, South Korea and UAE.

Name of some suppliers are:

- 1- Corsell Est., Switzerland
- 2- AMESCO, France
- 3- Chaldic Chemie BV. Netherlands
- 4- Tip Top Stuhlgruber, Germany
- 5- Elf Auto Chem, France.
- 6- Hansa Chemie, Germany
- 7- Poly Acryl Iran Corp Bv. Rotterdam , Netherlands
- 8- Kaldic Company
- 9- ICI
- 10- Merck Co.

In an interview with chairman of Iran Federation of Chemical Distributors and his deputy, it was learnt that approximately 3500 MT of TCA and 500 MT CTC are imported by this sector through various channels.

Solvent Uses in Iran

There are three major potential applications of CTC, TCA, and CFCs in Iran.

- 1- Solvents
- 2- Process Agent
- 3- Laboratories.

Iran does not import CTC for use as feedstock.

In Iran CTC is not used as Process Agent. CFCs are used as process agents. Methyl Bromide is used as fumigation agent in agrochemicals industries and perhaps as process agent in pharmaceutical industries.

CTC, TCA and CFCs for solvent sector are often imported under different names, formulas and brands, such as Freon, Kelva, Methyl Chloroform, Paint Stripper, windshield cleaner.

Major applications of CTC, TCA, and CFCs as solvent are as follows;

1- Communication Devices Manufactures

- a) Avionic instruments
- b) Submarine telecommunications, Automotive telecommunications
- c) Mobile telecommunications & network appliances

2- TV, radio, computer, electronics manufacturers

- a) Semi conductors (wafers)
- b) Electronic circuits
- c) Transistors
- d) High definition cathode ray tubes
- e) Picture Brown tubes
- f) Micro switches
- g) Disk drives

3- Metal processing (including Jewelry) industries

- a) Bearings, cog wheels
- b) Weapon assemblies
- c) Watch components
- d) Medical equipment (surgical & dental)
- e) Bicycle, automobile, track, railroad, bulldozer, ship, aircraft, spacecraft components and assemblies (engines, gear boxes, cogs, riveted aircraft wings, etc.)
- f) Electric power plant turbines
- g) Heat exchangers
- h) Steel sheets (degreasing at steel mills)
- i) Razor blades and cutlery
- j) Various apparatuses and plants (e.g., chemical and food processing)
- k) Machines (e.g. sewing)
- l) Various press parts
- m) Metal jewelry

4- Plastic processing industries

- a) Various castings

5- Glass processing industries

a) Optical components (lenses)

6- Maintenance

- a) Paint stripping (automobiles, aircraft, etc.)
- b) Degreasing (industrial compressors, turbines, automobile and aircraft components, etc.)

7- Dry cleaners

The table below demonstrates the average amount of solvents that were being used in different sub-segments as determined in this survey.

CTC, TCA, and CFCs consumption in year 2002 In I.R. Iran in different Sub - Segments								
Solvent Sub-Segment	CTC Consumption Declared		CTC Consumption Estimated		TCA Consumption Declared		TCA Consumption Estimated	
	MT	Number of Enterprises	MT	Number of Enterprises	MT	Number of Enterprises	MT	Number of Enterprises
Metal Cleaning	418	17	422	19	569	8	223	7
Textile	341	7	166	4	60	1	0	0
Heat Exchangers Condensers, and Evaporators	212	6	157	7	161	5	276	7
Casting	0	0	0	0	168	3	55	5
Communication, Electrical, and Electronics	50	3	30	2	135	4	53	2
Maintenance Activities Aircraft, Helicopter, Ship, and Railways	80	2	30	2	808	6	520	6
Film Cleaning	11	4	0	0	0	0	0	0
Food products	45	1	0	0	405	8	410	8
House Hold	10	1	0	0	25	1	0	0
	1167		805		2331		1537	
Others Total CFC-113 = 81 MT.								
Total ODP	Declared MT		Estimated MT		Total ODP (DCL. + EST.) MT			

	1590.7	1039.2	2629.9
--	--------	--------	--------

Note: Invoices are available for 1450.4 MT of the declared quantities.
Since consumption of CTC for feedstock purposes is not eligible for funding from Multilateral Fund and this consumption is not controlled by Montreal Protocol, the amount of CTC for feedstock is not considered here.

Chapter III

Policy Framework

Institution Framework

Department of Environment:

- The government of Iran has entrusted the Department of environment as an implementing agency to undertake activities and measures to eliminate the use of Ozone Depleting Substances and ensure Iran's full compliance with its obligations under the Montreal Protocol. DoE has established an Ozone Office in 1994 to coordinate and facilitate ODS phase out activities in Iran.
- Prior to the establishment of the Ozone Office, an interdepartmental intergovernmental committee called the Ozone National Committee was formed to draw the strategy of ODS phase out in the Country. The Department of Environment and the Ministry of Industry formed the Committee. Now it is composed of representatives of the elements, which is chaired the Deputy Head of the Department of Environment who is also the Ozone Project Director.

- 1- DoE,
- 2- Ministry of Industries and Mines,
- 3- Ministry of Foreign Affairs,
- 4- Ministry of Agriculture,
- 5- Ministry of Commerce,
- 6- Plan and Budget Organization,
- 7- Ministry of Oil
- 8- I.R. Bureau of Customs
- 9- Meteorology Organization

- The Ozone Office was established in 1994 to enhance assistance to the Department of Environment as the National Focal Point in its multi-component ODS phase out activities effectively through the adoption of the strategy drawn up by the Committee with appropriate policy and control measures. The Office is mainly in charge of supervising and coordinating the implementation of the approved projects, gives advice to the Committee for preparation of new projects on a priority basis, and prepares periodic progress reports to the Fund Secretariat and concerned agencies in compliance with the Montreal Protocol provisions.

Collecting, collating, analyzing and disseminating the available data is also a part of the Office activities. The Office in its new phase of activities will focus its efforts on project and sub-project preparation and implementation for a wide range of enterprises including SSE (Small Scale Enterprises). Such practice includes:

- Organizing a wide range of public awareness campaigns, promoting cooperation among industries and the Government bodies, facilitating access of the local enterprises to regional and international related on-going activities,
- Providing assistance to all ODS users, and accelerating the phase-out process in all sectors,
- Preparation of new project proposals for the elimination of remaining ODS including:
 - ✓ Preliminary pre-investment studies of the projects in hand,
 - ✓ Identifying areas of common interests and needs among SSE'S,
 - ✓ Developing feasibility study project for recovery and recycling of CFC-12 used in refrigeration and mobile air conditioning industries,
 - ✓ Determination of cost-effective phase-out approaches for Small and Medium scaled Enterprises with low ODS use. The plan includes:
 - ✓ Assessment of alternative technologies with the emphasis on economic and technical appraisal of projected ODS transition management planning, awareness on emerging technologies to ensure that SSEs are not adversely affected by the phase-out process,
 - ✓ Developing a project for training of personnel involved in codification and identification of ODS containing substances and equipment; training of the government technical staff in the implication of technology transfer through on-site factory visits to initiate coordination on monitoring of the Montreal Protocol related activities; expand and upgrade of statistics of the custom's network,
 - ✓ Arrangement of workshops to provide government and industry decision makers with basic information on ODS control policies and latest alternative products and non-ODS related technologies
 - ✓ Conduct more studies for the phase out of CFC in after-sale service stations of refrigeration,, training of more technicians; establishment of a licensing system,

- ✓ Publication of technical brochures, a newsletter, and a quarterly published bulletin for concerned people as well as the public; printing of new posters on the subject; preparation of query- response and questionnaires for ODS users, and a catalogue of ODS free technologies,

UNIDO, UNDP and AFD have been selected the government of Iran as implementing agencies for executing MP approved ODS phase out Projects.

UNIDO has been selected to prepare this ODS phase out Plan to be submitted to MP.

Relevant Regulations

Government of Iran has put in place a number of policy instruments to facilitate effective phase out of Ozone Depleting Substances in the industry sectors. Policy instruments include command and control measures to assure effective implementation of MP projects and consumption of controlled substances.

The government elements have put an effort to notify rules covering production, sales, consumption, export and import of ODS

Phase out Schedules

Substances	Maximum Allowable Annual Consumption as of Percentage of Baseline Level	Effective Date
Group I CFC-11, CFC-12 and CFC-113	50%	1 January 2005
	15%	1 January 2007
	0	1 January 2010
Group IV CTC	15%	1 January 2005
	0%	1 January 2010
Group V 1,1,1 – TCA	70%	1 January 2005
	30%	1 January 2010
	0%	1 January 2015

Chapter IV

Sector Current Status

Solvent Sub-Sector

There are four ODS substances that are commonly used as solvent. These are:

- 1- CFC-11
- 2- CFC-113
- 3- TCA
- 4- CTC

Based on this survey carried out by UNIDO, demand for CFC-11 and CFC-113 as solvent is insignificant. However large quantities of CTC and TCA are being used in Iran as Cleaning Solvent.

List of CTC and TCA consumers in Metal Cleaning and Textile industries are summarized below.

Communication Devices Manufactures

- Avionic instruments
- Submarine telecommunications, Automotive telecommunications
- Mobile telecommunications & network appliances

TV, radio, computer, electronics manufacturers

- Semi conductors (wafers)
- Electronic circuits
- Transistors
- High definition cathode ray tubes
- Picture Brown tubes
- Micro switches
- Disk drives

Metal processing (including Jewelry) industries

- Bearings, cog wheels
- Weapon assemblies
- Watch components
- Medical equipment (surgical & dental)
- Bicycle, automobile, track, railroad, bulldozer, ship, aircraft, spacecraft components and assemblies (engines, gear boxes, cogs, riveted aircraft wings, etc.)
- Electric power plant turbines
- Heat exchangers

- Steel sheets (degreasing at steel mills)
- Razor blades and cutlery
- Various apparatuses and plants (e.g., chemical and food processing)
- Machines (e.g. sewing)
- Various press parts
- Metal jewelry

Plastic processing industries

- Various castings

Glass processing industries

- Optical components (lenses)

Maintenance

- Paint stripping (automobiles, aircraft, etc.)
- Degreasing (industrial compressors, turbines, automobile and aircraft components, etc.)

Dry cleaners

Consumption of CTC and TCA are in the two major application: Metal Cleaning and Textile Industries, there is a large number of small users in these industries. The survey was able to identify 150 enterprises using CTC and TCA as solvent.

Large Governmental and Private consumers sometimes import their required material such as: CTC, TCA, and CFCs directly from their suppliers under different commercial names and brands.

During our survey, we experienced that CTC, TCA, and CFCs are also imported under different Commercial Names and Brands,(with some additives) which are not easily detectable and identifiable by the customs.

20% error may arise in figures due to various data source collection and estimation on uncertainties.

20% of total ODS consumption identified and surveyed should be added for Small Sector ODS consumers.

**ODS Consumption of CTC, TCA, and CFCs
1996-2002**

ODS Type (MT)	1196	1997	1998	1999	2000	2001	2002
CFC-113	65	79	72	79	80	78	81
CTC	1525	1680	1850	1940	1820	1960	1972
TCA	3560	3687	3765	3950	3580	3155	3868

Total	5150	5446	5687	5969	5480	5193	5921
-------	------	------	------	------	------	------	------

- Actual figures may vary slightly due to mismatch between the figures declared from different sources

Current Status of Solvent Industry Segment in Iran

The ODS chemicals as Solvent and Process agents Phase out Plan was developed initially by AFD and UNIDO under leadership of DOE Ozone Office. The AFD of France was assigned by DOE Ozone Office to implement the first and only CTC phase out project at Irandocharkh Company in Iran to phase out 10 Metric tones of CTC, which was used as pre-welding degreasing agent. The company chose an acqua based Ozone Friendly degreasing method. The project was successfully complete in February 2003.

According to short survey carried out by AFD France in 1998, 10 ODS consumers were identified with 24 MT of CTC and 110 MT of TCA. The total amount of 37.4 ODP tones was identified (reference Irandocharkh investment project document approved by MP in November 1999 meeting). AFD (1998) confirmed that the survey was still ongoing to identify consumption and to try to identify the remaining large consumer companies.

No ODS solvent sector phase out project has been implemented since then in Iran, while during this new survey it was observed that there are many companies in different industry segments, which are using various types of ODSs as solvents.

For solvent and process agent sectors, the Government of Iran assigned UNIDO to prepare a survey in solvent sector for preparation of Country Programme Update and National Solvent Phase Out Plan.

The survey of ODS chemicals (CTC, TCA, and CFCs) consumption to prepare country update program and phase out plan has been undertaken under the guidance of DOE Ozone Office, UNIDO and relevant industrial sectors. This survey has been prepared in accordance with the Guidelines for preparation of Sector and National Plan as adopted by ExCom, DoE Ozone Office and UNIDO.

Current status of the following industry segments are defined based on data collected, site survey, and official data sources obtained during execution of Solvent Survey Project in Iran.

Aviation Maintenance Industries

The first National Iranian flag airline started in early 1950 with short domestic flights using small propeller aircraft. During the first decade of using civil aircraft, maintenance tasks were conducted by skilled crews of the aircraft manufacturers. Foreign maintenance centers mainly located in Europe and United States have had the main role in maintenance and overhaul of civil and military aircraft in Iran during the first decade of jet aircraft in Iran, until 1970s when Iran's rapid growth and development started after the oil price increase.

During 1969 – 1975 the government of Iran made a huge investment on establishing two large aviation maintenance and overhaul centers with the aim of support and maintenance of large numbers of fixed and rotary wing aircraft, which have purchased from European Countries and mainly from United States. These two companies, named Iran Aircraft Industries (IACI) and Iran Helicopter Support and Renewal Company (IHSRC), have been established in 1968 and 1969. The main objective of establishing these companies is the Repair, Maintenance and Overhaul of different types of jet, propeller and turbo shaft engines together with all civil and military aircraft. There are more than 6000 engineers, technicians and skilled personnel in the companies. Estimated investment on these two industries was more than 4 billion dollars. In 1979-1980 the government of Iran decided to nationalize all small air carriers and join them into one airline called Asseman Airline, which together with carrying passengers, took the responsibility of repair, maintenance and overhaul of small commercial aircraft. Therefore, together with Iran Air, a national flag airline, which performs different periodic inspections and repair on its fleet, there are three large aircraft maintenance centers which conduct similar tasks.

The survey team of this project paid a five days visit to survey use of various ODS consumption at Iran Helicopter and Renewal Company (IHSRC) and prepared a comprehensive and detailed report which is our basic reference for estimating ODS consumption in the other three aircraft maintenance centers.

TCA, CTC, and CFC-113 are widely used in the repair shops. The technology for degreasing, and cleaning parts and components could be summarized as, Vapor Degreasing, Ultrasonic Degreasing, Mechanical Vibration Cleaning, Jet Spray, Jet Engine Compressor Wash cleaning, Immersing, Brush Cleaning, Paint Stripping, circuit board cleaning, and oil container cleaning for spectrometric oil analysis of engine, transmission, hydraulic components, and fuel.

1. Non Destructive Inspection Shop (NDI)
2. Electric Component Repair shop
3. Avionic Shop
4. Electronic shop
5. Laboratory Spectrometric Oil Analysis Program
6. Bearing shop
7. Engine shop
8. Aircraft Disassembly shop
9. Paint Strip Shop
10. Paint Shop
11. Flight Line (Engine periodic Compressor Wash)
12. Ground Support Equipment shop
13. Machine shop
14. Dynamic shop
15. Metal plating shop

ODS consumption in aviation maintenance industries

	Field of activity	Date of Establishment	Export	Location	Type of ODS	ODS Consumption Year 2002		
						CTC	TCA	CFC 113
IHSRC	Helicopter Maintenance	1969	0	Tehran	CTC/TCA	35	115	1
IACI	Aircraft/Jet Engine Maintenance	1968	0	Tehran	CTC/TCA	45	118	1
Hesa	Helicopter Aircraft Manufacture	1979	0	Esfahan	Already Converted	0	0	0
Aseman Airline	Aircraft Maintenance	1979	0	Tehran	CTC/TCA	20	70	1
Iran air	Aircraft Maintenance	1960	0	Tehran	CTC/TCA	10	60	1
Total						110	363	4

	ODS MT	1996	1997	1998	1999	2000	2001	2002
IHSRC	CTC	33	34	37	39	36	37	35
	TCA	110	110	120	135	115	120	115
	CFC	1	1	1	1	1	1	1
IACI	CTC	45	48	42	36	32	43	45
	TCA	120	125	115	98	90	115	118
	CFC	1	1	1	1	1	1	1
Iran Asseman Ailine	CTC	18	23	19	22	20	23	20
	TCA	70	76	65	68	70	74	70
	CFC	1	1	1	1	1	1	1
Iran Air	CTC	8	10	15	10	12	10	10
	TCA	58	62	65	62	65	60	60
	CFC	1	1	1	1	1	1	1

Source: Back Dated Estimation 1996 – 2001

Bicycle and Motor cycle industries

Irandocharkh, the first bicycle and motorcycle manufacturer in Iran, was founded in 1973 and is located in Alborz Industrial Zone near Ghazvin. The company is one of the largest

of the motorcycle and bicycle manufacturers. As previously mentioned, the first and the only Solvent phase out project was implemented in this sector by AFD France under guidance and monitoring of MP as a bilateral project. This project, which was successfully completed in February 2003, phased out 11 MT of ODP at Irandocharkh company.

Since 1970s more than 120 small, medium and large bicycle and motor cycle industries have been founded in Iran, about 75% of them were constructed and commenced their production after 1995, and so are not eligible for implementation of MP projects. Some enterprises have already converted their ODS production line into Ozone friendly production line.

Vapor degreasing method is the most common technology for pre-welding degreasing process. CTC is also widely used in this Industry Segment. The following companies are among the 120 enterprises which have been identified and surveyed.

Amount of 307 MT. of CTC consumed in this sector during 2002 by 18 known motor cycle and bicycle manufacturer

* Irandocharkd annual ODS (10 MT) phase out in 2003.

Vehicle Industries

The history of car industries in Iran goes back to early 1950s. There two large car manufacturers in Iran , whose annual production rate is more than 500,000 cars. Most of them have converted their production lines to Ozone Friendly techniques, without requesting any funding from MP. One company, Bahman Khodro, consumes as much as 45 MT of TCA.

In Car Industry Segment there are many sub-contractors who are supplying automobile metal and electric parts and components for large car manufacturers. Some of these enterprises are listed among other solvent Industry Segments, such as casting, metal parts manufacturer, etc.

Castings

Casting industries in Iran are very old. Identifying all casting industries in various fields such as Metal and Plastic mould casting from Iran Casting Directory would require time and much effort. The names and amount of some enterprises, which were identified and surveyed on sample basis, are listed in annex V.

Dry Cleaning

Spot survey of some small dry cleaning in several areas, and declaration of Iran Dry Cleaning Society, revealed that none of more than 10,000 dry cleaning shops in Iran use

TCA in their closed system dry cleaning. Perchloroethylene is the most common agent used.

Electrical, Electronics, and Telecommunication industries

Pars electric company was selected as survey sample for evaluation and analysis of questionnaire forms received from some selected enterprises.

Some enterprises also visited to verify the data receive. Declared ODS 185 Estimated ODS consumption in this segment 83

Analysis of data obtained from different enterprises shows that total amount of 268 MT. of different types of ODS are consumed in this sector, application of ODS solvents are in this Industry Segment are mainly for metal cleaning and circuit board spray cleaning. Vapor and ultrasonic degreasing methods are the most common technologies use in this Industry Segment and aerosol circuit board cleaning is very common.

Film Cleaning Industries

The film cleaning market in Iran remains at a fairly constant size. The automatic cleaning machines are used to clean film of all types. These automatic units are typically used in film laboratory or film-to-videotape transfer facility, each of which usually operates two units with an annual average solvent usage of 3000 liters. The solvent traditionally used in these automatic film-cleaning units is TCA.

There are four major film cleaning laboratory centre in Iran. Film Laboratories centers in ministry of Islamic Guidance and I.R. Broadcasting Company, which are controlled by the government, declared that they are consuming approximately 7 MT of CTC for film cleaning.

Two other private enterprises declared that they are consuming 4 MT. of CTC. These enterprises are listed in Annex V

Food Product Industries

According to the list of food product producers provided in the food industry directory, more than 80 enterprises in Iran are producing and packing food products. Iran's post war development after 1988 caused a significant development in this Industry Segment. Most of food product industries were founded after 1995, therefore we should not consider them eligible for MP project. TCA is the most common agent used for removing stains, and residual of raw materials and blends from the system production line. Vapour cleaning, brush cleaning, ultrasonic cleaning and jet spray cleaning technologies are also used in this Industry Segment.

List of selected and some identified food product enterprises are listed in Annex V

Metal Parts Manufacturing Industries

This Industry Segment covers a wide range of different kind of metal products producers. We could consider steel sheet metal producer down to nuts and bolts producers in this Industry Segment. In this survey some enterprises, which were visited and identified, are listed in Annex I. TCA and CTC are very common solvents in this sector. The most commonly used technologies are vapor degreasing and ultrasonic cleaning technologies. As previously mentioned many parts manufacturers in this Industry Segment are producing parts and components for car, bus, truck, and motor cycles. The following fields should be considered in this Industry Segment. The enterprises identified and visited are listed in Annex V

- b) Transmission and gear boxes
- c) Car Axle manufacturer
- d) Car Chassis Manufacturer
- e) Steel Plant
- f) Steel Sheet Metal Plant
- g) Metal Plating
- h) Gas Fittings
- i) Gas Regulators
- j) Nut, Bolts and Washers
- k) Pipe fittings
- l) Key and Locks
- m) Razor Blades
- n) Industrial valves
- o) Sanitary Valves
- p) Electrical Motor Devices
- q) Telephone set Manufacturer
- r) Machineries

Pharmaceutical Industries

80% of Pharmaceutical producers in Iran import finished product for blending, re-packing and distributing different kind of medicines. Many have already converted their plants with their own funds. The following enterprises, which are involved in producing

Table below shows enterprises in Iran, which use CFCs, CTC and TCA in their production lines.

Approximate CTC and CFCs consumption in these enterprises are 160 MT. In annex IV 80% of pharmaceutical enterprises are listed.

The largest Metered dose inhalers (MDI) producer in Iran will not be considered as part of this survey program by UNIDO. One MDI company consumes more than 93 metric tones of CFC-11 and CFC-12 in its MDI production line.

Railways maintenance industry

Railways industries are divided into two major sector, Manufacturing and Maintenance sub sectors.

Pars Wagon manufacturing company, established in 1973, is located in Arak Industrial Zone, 220 km south east of Tehran. This company manufactures 50 different models of Wagons per year. According to survey and data received, the company consumes 110 MT of TCA for metal cleaning in manufacturing process and repair and overhaul of the locomotives, wagon parts and equipment. The company is a state owned company and its supply and services are provided to Iran Islamic Republic Railways company (RAJA) and Bonyad Railways, a Mostazaffin and Janbazan Organization, a private company.

Iran Islamic Republic Railways company (RAJA), which is 100% state owned, has an organization, maintenance and overhaul center responsible for repair, maintenance, and overhaul of all locomotives, wagons and equipment in this company. The company has announced a total amount of 260 MT of TCA for their oil residual cleaning process.

Refrigeration and Heating Industries (Heat Exchangers, Condenser, Evaporators)

There are more than 40 companies working in this Industry Segment, producing various types of heat exchangers for different applications. These include Domestic, and Commercial refrigerator and freezer application (Condenser and Evaporator), Fan Coils for industrial, domestic and commercial applications, Car Radiators, Home Wall Radiators, tube shell evaporators for Chillers, Air conditioners, and fan cooled condenser and evaporator for windows/split unit air conditioners.

CTC is the most common ODS agent used but TCA is also used as cleaning agent. The total declared amounts of 212 MT. CTC in 6 enterprise and 161 MT. TCA declared in 5 Enterprise are consumed . total amount of 369 MT. CTC and 437 MT. TCA are consumed in more than 25 enterprises as estimated and declared figures.

Vapor degreasing and immersing technologies are used to remove oil and contaminant residues inside the metal tubes.

List of identified and surveyed enterprises in this Industry Segment is shown in Annex V.

Shipyards and ship maintenance industries

Following companies are the best known companies carrying out ship maintenance activities. Declared 705 Mt. of TCA consumed in 2002, by six companies

a) Iran Islamic Republic Ship Liner	150 MT. TCA
b) Sadra Ship Maintenance Center	160 MT. TCA
c) Sadaf Ship Maaintenance Co.	60 MT. TCA
d) Persian Gulf Ship Company	155 MT. TCA
e) Val Fajr Ship Co.	100 MT. TCA

f) Tavan Darya System Co.

80 MT. TCA

Vapor degreasing system, Ultrasonic Cleaning method and brush cleaning are used as cleaning technologies in Ship Maintenance and Manufacturing Solvent Industry Segment.

State Owned Industries

There are many Governmental-controlled companies, which have not been identified due to lack of time and necessity for paperwork formalities to collect data and verify Solvent ODS consumption. The survey of these companies is ongoing and any additional information will be amended to this report upon completion of the Survey.

Textile industries

According to Iranian Textile Compass Directory (Textile Yellow Book) there are more than 1,000 small, medium, and large enterprises in Iran producing Textiles, Machine Carpets, Synthetic Carpets.

The textile industry in Iran is very old. The first industrialized textile factory in Iran was established 150 years ago. Iran Carpet Handicraft Industries are very famous in the world and more than 3,000,000 people are involved in weaving Traditional Handicraft Carpets. Carpets export is the second most valuable product after OIL export in Iran.

Due to shortage of time it is not possible to survey all textile industries in Iran. With the coordination of the society of textile producers we selected some textile producers for survey, estimated and declared ODS consumption figures are in Annex V, and the list of some large Textile companies is also included in Annex V.

Aerosol Pesticides

Many pesticides formulated as aerosols contain methyl chloroform as a solvent. Common pesticides formulated with methyl chloroform include total release indo foggers (TRIF), household roach sprays, and wasp hornet spray. Usually, methyl chloroform is the solvent of choice to decrease flammability or to make the products non flammable. In many cases, it is essential that pesticides be non-flammable in order to meet certain requirements such as those of W.H.O. to regulate flammability in pesticides used in aircraft. Flammability is of particular concern for TRIF products, which are designed to be dispensed in relatively large rooms. Often, the risk of fire is increased because TIRF products are applied incorrectly by consumers (e.g. they are released in small rooms or closets, or are set down too close to ovens).

70% of the Aerosol industries in Iran have been converted without enjoying MP funds, and due to very small amount of consumption in the remaining small industries, there is likely to be a high investment and high cost effectiveness for such projects.

Process Agent Sub-Sector

CTC is the only ODS the Solvent Sector, which might be used as process agent in Iran. Possible processes are in four major categories;

- 1- Chlorinated Rubber Industry
- 2- Chlorinated Paraffin
- 3- Pharmaceutical Industry
- 4- Miscellaneous industries

CTC application under the first category above is listed in Table A of Decision X/14 as approved process agent application under the Montreal Protocol. 100% of chlorinated rubber consumed in numerous industries in Iran is imported.

This Survey did not find any use of CTC as Process Agent in Iran.

100% of chlorinated paraffin consumed in numerous industries in Iran is imported.

Fumigation Sub-Sector

The survey reveals that 90% of Greenhouses and Herbal Seeds Warehouse Industries in Iran consume Methyl Bromide as pesticide. 10% remaining of consumption is spread among many small enterprises, which they will be converted on their own funds with or without a sustainable program by the Government. The appropriate alternatives are offered and recommended by the bureau of pesticides control and application in ministry of Agriculture and Jihad.

Annex I
List of Solvent Suppliers, Importers

Name of Some Suppliers

- 1- Corsell Est., Switzerland
- 2- AMESCO, France
- 3- Chaldic Chemie BV. Netherlands
- 4- Tip Top Stuhlgruber, Germany
- 5- Elf Auto Chem, France.
- 6- Hansa Chemie, Germany
- 7- Poly Acryl Iran Corp Bv. Rotterdam, Netherlands
- 8- Kaldic Company
- 9- ICI
- 10- Merck Co.
- 11- Du Pont

Names of some importers are,

- 1- Iran Shimi Company
- 2- Alborz Shimi Company
- 3- Sahand Shimi Company
- 4- Arefi Comapny
- 5- Kian gostar Company
- 6- Khodabandelu Chemical Company
- 7- Arash Company
- 8- Bolur Company
- 9- Nouhi Company
- 10- Nickle Farayand Company
- 11- Pars Nickle Company
- 12- Felez Ab Company
- 13- Felez poushan Company
- 14- Shlotter Company

Important Note:

CTC, TCA and CFCs for solvent sector are imported in different names and brands, such as PD 680, Alten D6, Freon, Kelva, Methyl Chloroform, Paint Stripper, windshield cleaner and etc.

Annex II

List of Uses of Controlled Substances

CTC, TCA, and CFCs consumption in year 2002 In I.R. Iran in different Sub - Segments								
Solvent Sub-Segment	CTC Consumption Declared		CTC Consumption Estimated		TCA Consumption Declared		TCA Consumption Estimated	
	MT	Number of Enterprises	MT	Number of Enterprises	MT	Number of Enterprises	MT	Number of Enterprises
Metal Cleaning	418	17	422	19	569	8	223	7
Textile	341	7	166	4	60	1	0	0
Heat Exchangers Condensers, and Evaporators	212	6	157	7	161	5	276	7
Casting	0	0	0	0	168	3	55	5
Communication, Electrical, and Electronics	50	3	30	2	135	4	53	2
Maintenance Activities Aircraft, Helicopter, Ship, and Railways	80	2	30	2	808	6	520	6
Film Cleaning	11	4	0	0	0	0	0	0
Food products	45	1	0	0	405	8	410	8
House Hold	10	1	0	0	25	1	0	0
	1167		805		2331		1537	
Others Total CFC-113 = 81 MT.								
Total ODP	Declared MT		Estimated MT		Total ODP (DCL. + EST.) MT			
	1590.7		1039.2		2629.9			

Note: Invoices are available for **1450.4 MT.** of the declared quantities.

Annex III
Consumption of Process Agent Sector

Consumption as process Agent has been considered for one enterprise, Sina Darou, with total amount of 93 MT in year 2002. This company is an inhaler producer and a separate investment project document should be prepared. No funds are requested for this company in Solvent Sector Phase out Plan, since it will be covered under the CFC Phase-Out Plan.

Annex IV
Estimated Consumption of CTC TCA, and CFC-113,
in Solvent
and Process Agent Sectors

ODS Type (MT)	1196	1997	1998	1999	2000	2001	2002
CFC-113	65	79	72	79	80	78	81
CTC	1525	1680	1850	1940	1820	1960	1972
TCA	3560	3687	3765	3950	3580	3155	3868
Total	5150	5446	5687	5969	5480	5193	5921

TCA Consumption Trend 1995-2002

Number of Enterprises	Average Consumption MT						
	1996	1997	1998	1999	2000	2001	2002
66	3560	3687	3765	3950	3580	3155	3868

CTC Consumption Trend 1995-2002

Number of Enterprises	Average Consumption MT						
	1996	1997	1998	1999	2000	2001	2002
68	1525	1680	1850	1940	1820	1960	1972

CFC -113 Consumption Trend 1995-2002

Number of Enterprises	Average Consumption MT						
	1996	1997	1998	1999	2000	2001	2002
Others	65	79	72	79	80	78	81

Total CTC, TCA and CFC-113, Consumption Trend 1995-2002

Number of Enterprises	Average Consumption						
	1996	1997	1998	1999	2000	2001	2002
134	5150	5446	5687	5969	5480	5193	5921
Total ODP	Declared MT		Estimated MT		Total ODP (DCL. + EST.) MT		
	1590.7		1039.2		2629.9		

Annex V
List of identified Industries in Solvent Sector

DCL. = Declared and EST. = Estimate

Enterprise Name		Filed of Activity	Date of Establishment	Export MT.	Type of Solvent or Processes Agent	Average Consumption in 2002 (MT)			
						CTC		TCA	
						*DCL.	*EST.	*DCL.	*EST.
1.	Kombine Sazi Iran	Agricultural Machineries	1978	0	0	0	0	0	0
2.	Aseman Co	Aircraft Maintenance	1980	0	CTC/TCA	0	20	0	70
3.	Iran air	Aircraft Maintenance	1960	0	CTC/TCA	0	10	0	60
4.	IACI	Aircraft/Jet Engine Maintenance	1968	0	CTC/TCA	45	0	118	0
5.	Kooban Kar	Bolts and Nuts	1983	0	CTC	20	0	0	0
6.	Chilan	Bolts and Nuts	1992	0	CTC	47	0	0	0
7.	Cable Alborz	Cable Manufacturing	1975	0	CTC	0	0	120	0
8.	Iran Mevar Co.	Car Axle Manufacturer	1995	0	CTC	0	25	0	0
9.	Mehvar Sazan Iran	Car Axle Manufacturer	1993	0	CTC/TCA	25	0	45	0
10.	Mega Motor	Car Engine Manufacturer	1992	0	CTC	30	0	0	0
11.	IranKhodro	Car Manufacture		0	Already Converted	0	0	0	0
12.	Saypa	Car Manufacture		0	Already converted	0	0	0	0
13.	Bahman Khodro	Car Manufacturer	1978	0	TCA	0	0	145	0
14.	Morattab Co.	Car Manufacturer	1975	0	TCA	0	0	0	23
15.	Pars Khodro	Car Manufacturer		0	Already Converted	0	0	0	0
16.	Kerman Khodro	Car Manufacturer		0	Already Converted	0	0	0	0

17.	Shassi Sazi Iran	Car Structure	1994	0	TCA	0	0	35	0
18.	Rikhtegari Iran	Casting	1964	0	TCA	0	0	120	0
19.	Nasrollah Tajik Zn Die Casting Co.	Casting	1986	0	TCA	0	0	36	0
20.	Foolad Rizan Co.	Casting	1981	0	TCA	0	0	0	10
21.	FoulIran	Casting	1975	0	TCA	0	0	0	10
22.	Karan	Casting	1983	0	TCA	0	0	0	15
23.	Aloupen	Casting	1974	0	TCA	0	0	0	8
24.	Sanayeh felezi Fooladen	Casting	1981	0	TCA	0	0	12	0
25.	Azad Metal	Casting	1990	0	TCA	0	0	0	12
26.	Iran Communication Manufacture Co. ICMC	Communication Devices such as Telephone and etc.	1969	0	CTC/TCA	20	0	55	0
27.	Long Distance Communication Industries	Communication Divices	1975	0	CTC/TCA	0	15	0	38
28.	Vala Fan Co.	Condenser and Evaporator for Car	1993	0	TCA	0	0	35	0
29.	Amen Sanaat Co.	Condenser Evaporator	1993	0	CTC	60	0	0	0
30.	Kousar	Condenser Evaporator	1979	0	CTC	20.2	0	0	0
31.	Zagross II	Condenser Evaporator	1966	0	CTC	35	0	0	0
32.	Electrosteel	Condenser Evaporator	1982	0	CTC	46.8	0	0	0
33.	Tabadol Kar Co.	Condenser Evaporator	1972	0	CTC	0	30	0	0
34.	Koolak Iran	Condenser Evaporator	1984	0	CTC	0	20	0	0
35.	Vahid Co.	Condenser Evaporator	1984	0	TCA	0	0	35	0
36.	Rad Iran	Condenser Evaporator	1967	0	TCA	0	0	0	25
37.	Tahviah Arvand	Condenser Evaporator	1986	0	TCA	25	0	0	0
38.	Tahvie Ara	Condenser Evaporator	1980	0	TCA	0	0	0	22
39.	Omran Tahvie	Condenser Evaporator	1993	0	TCA	0	0	0	18
40.	Sub Cool	Condenser Evaporator	1984	0	TCA	0	0	22	0
41.	Saravel	Condenser Evaporator	1982	0	TCA	0	0	0	35
42.	Zahesh	Condenser	1993	0	TCA	0	0	0	25

		Evaporator							
43.	Minoo Co.	Confectionery	1956	0	TCA	0	0	20	0
44.	Casra Cosmetic Co.	Cosmetic	1963	0	CTC	16.2	0	8	0
45.	Idem Co.	Diesel Engine	1973	0	TCA	0	0	0	15
46.	Jahan Motor	Diesel Engine	1993	0	TCA	0	0	0	25
47.	Sairan	Electrical Appliances	1975	0	0	0	0	0	0
48.	Pars Electric	Electrical Appliances	1960	0	CTC/T CA	0	0	20	5
49.	Shahab electric	Electrical Appliances	1963	0	CTC/T CA	0	25	0	10
50.	Pars Khazar	Electrical Household Appliance producer	1969	0	TCA	0	0	0	15
51.	Lamp Iran	Electrical Lamp	1975	0	CTC- TCA	0	15	0	15
52.	Lamp Pars	Electrical Lamp	1973	0	CTC	0	10	0	0
53.	Chal Electric	Electrical Lamps	1991	0	CTC- TCA	5	0	20	0
54.	Kontor Sazi Iran	Electrical Meter Device	1973	0	CTC/T CA	35	0	40	0
55.	Pars Switch	Electrical Switches	1978	0	CTC	0	10	0	0
56.	Seda va Sima	Film Laboratory	1960	0	CTC	3	0	0	0
57.	Studio Badie	Film Laboratory	1965	0	CTC	3	0	0	0
58.	Studio Filmsaz	Film Laboratory	1978	0	CTC	2	0	0	0
59.	Studio Toloo Fajr	Film Laboratory	1970	0	CTC	0	0	0	0
60.	Ministry of Islamic Guidance Film Laboratory Center	Film Laboratory	1968	0	CTC	3	0	0	0
61.	Esans Iran	Food Products	1962	0	CTC TCA	55	0	35	0
62.	Sasan	Food Products	1980	0	TCA	0	0	0	45
63.	Ghoo Co.	Food Products	1960	0	TCA	0	0	35	0
64.	Barige Esans	Food Products	1991	0	TCA	0	0	0	12
65.	San Ich	Food Products	1994	0	TCA	0	0	0	45
66.	Kaleh	Food Products	1987	0	TCA	0	0	0	65
67.	1&1	Food Products	1970	0	TCA	0	0	0	85
68.	Tabarok	Food Products	1987	0	TCA	0	0	25	0
69.	Behchin	Food Products	1965	0	TCA	0	0	15	0
70.	Chin Chin	Food Products	1980	0	TCA	0	0	22	0
71.	Tone Jonoub	Food Products	1992	0	TCA	0	0	0	45
72.	Shilat Iran	Food Products	1980	0	TCA	0	0	0	98
73.	Bahrooz	Food Products	1972	0	TCA	0	0	90	0
74.	Mahram	Food Products	1977	0	TCA	0	0	95	0
75.	Behshar Industries	Food Products	1951	0	TCA	0	0	88	0

76.	Margarin Co.	Food Products	1953	0	TCA	0	0	0	15
77.	Others	From Customs Records	-	0	CFC-113	0	0	0	76
78.	Shtave Co.	Gas Fitting manufacturer	1995	0	CTC/TCA	10	0	25	0
79.	Iran Regulator Co.	Gas Regulator	1990	0	CTC/TCA	25	0	60	0
80.	Saran Company	Heat Exchanger	1992	0	CTC	0	45	0	0
81.	Mehr Asl Co.	Heat Exchanger	1990	0	CTC	0	12	0	0
82.	Sarma Afarin	Heat Exchanger	1979	0	CTC	0	25	0	0
83.	Tahviah Tehran	Heat Exchanger	1975	0	CTC	0	10	0	0
84.	Tehran Amag	Heat Exchanger	1979	0	CTC	25	0	0	0
85.	Sanayeh Hararati Iran	Heat Exchanger	1978	0	CTC	0	15	0	0
86.	Arminco.	Heat Exchanger	1977	0	CTC	25	0	0	0
87.	Hepco	Heavy Truck Manufacture	1976	0	TCA	0	0	0	35
88.	IHSRC	Helicopter Maintenance	1969	0	CTC/TCA	35	0	115	0
89.	Hesa	Helicopter/Aircraft Manufacture	1977	0	Already Converted	0	0	0	0
90.	Gholf Kar Co.	Key and Lock manufacturer	1989	0	CTC/TCA	15	0	45	0
91.	Tajik Electroplating Co.	Metal Cleaning	1990	0	CTC	25	0	0	0
92.	Anisi Electroplating Co.	Metal Cleaning	1960	0	CTC	20	0	0	0
93.	Babaie Electroplating Co.	Metal Cleaning	1990	0	CTC	15	0	0	0
94.	Foolad Mobarekeh Steel Plant Complex	Metal Cleaning	1989	0	CTC	50	0	0	0
95.	Zobe Ahan Steel Plant	Metal Cleaning	1965	0	CTC	0	80	0	0
96.	Ahwaz Steel Plant	Metal Cleaning	1968	0	CTC	0	40	0	0
97.	Tehran Metal Press Co.	Metal Parts Manufacturer	1994	0	TCA	0	0	0	32
98.	Saveh Metal Parts Co.	Metal Parts Manufacturer	1992	0	TCA	0	0	0	33
99.	Tondar Shahab	Motor Cycle	1994	0	CTC	21	0	0	0
100.	Kasra Co.	Motor Cycle	1992	0	CTC	25	0	0	0
101.	Shahab Co.	Motor Cycle	1993	0	CTC	0	10	0	0
102.	Talash Co.	Motor Cycle	1990	0	CTC	0	15	0	0
103.	Nami Cycle	Motor Cycle	1988	0	CTC	0	15	0	0

	Co.								
104.	Tiz Ro	Motor Cycle	1992	0	CTC	0	18	0	0
105.	Tiz Tac	Motor Cycle	1972	0	CTC	0	10	0	0
106.	Sara Co.	Motor Cycle	1998	0	CTC	0	20	0	0
107.	Shirou Co.	Motor Cycle	1994	0	CTC	0	15	0	0
108.	Sahra Co.	Motor Cycle	1999	0	CTC	0	16	0	0
109.	Kayvan Co.	Motor Cycle	2000	0	CTC	0	14	0	0
110.	Nirou Mohreke	Motor Cycle	1992	0	CTC	0	25	0	0
111.	Honda Iran Co.	Motor Cycle	1986	0	CTC	0	15	0	0
112.	Tak Taz	Motor Cycle	1998	0	CTC	0	12	0	0
113.	Basel Co.	Motor Cycle	1997	0	CTC	0	14	0	0
114.	Dena Co.	Motor Cycle	1993	0	CTC	0	18	0	0
115.	Amico	Motor Cycles	1990	0	CTC	24	0	0	0
116.	Fayyazi Paint Stripping Co.	Paint Stripping Co.	1985	0	CTC/T CA	10	0	25	0
117.	Azar Ab	Power Plant equipment and Machinerics	1972	0	0	0	0	0	0
118.	Azhir Radiator	Radiator	1958	0	TCA	0	0	45	0
119.	Iran Radiator	Radiator	1987	0	TCA	0	0	0	40
120.	Sard Saz Khodro	Radiator	1994	0	TCA	0	0	0	45
121.	Raja Co.	Rail Way Maintenance	1935	0	TCA	0	0	150	0
122.	Pars Locomotive	Rail Way Wagon Manufacturer	1973	0	TCA	0	0	110	0
123.	Kachiran Co.	Sewing Machine Manufacture	1993	0	CTC	0	15	0	0
124.	Lamiran Co.	Shaving Razor Blade	1991	0	TCA	0	0	0	20
125.	Tavan Darya System	Ship Maintenace	1995	0	TCA	0	0	0	80
126.	I.R. Ship Liner	Ship Maintenance	1990	0	TCA	0	0	0	150
127.	Val Fajr Ship Liner	Ship Maintenance	1993	0	TCA	0	0	0	100
128.	Persian Golf Ship Manufacturing Co.	Ship Maintenance and Manufacturer	1990	0	TCA	0	0	155	0
129.	Sadra Co.	Ship Maintence and Manufacturer	1993	0	TCA	0	0	160	0
130.	Sadaf Co.	Ship Manufacture and Maintenance	1992	0	TCA	0	0	0	60
131.	Chit Sazi Co.	Textile	1950	0	CTC	0	35	0	0
132.	Rahnama Shimi	Textile	1990	0	CTC	10	0	6	0
133.	Pushineh Co.	Textile	1985	0	CTC	0	0	0	0

134.	Kaveh Alyaf	Textile	1969	0	CTC	20	0	0	0
135.	Kamiar Co.	Textile	1950	0	CTC	0	17	0	0
136.	Nasaji Mazandaran	Textile	1945	0	CTC	0	60	0	0
137.	Moghaddam Co.	Textile	1960	0	CTC	0	54	0	0
138.	Polacryli Co.	Textile	1969	0	CTC	25	0	0	0
139.	Poushineh Baft	Textile	1965	0	CTC	50	0	0	0
140.	Pourangan	Textile	1972	0	CTC	190	0	60	0
141.	Nakhe Alborz	Textile	1968	0	CTC	0	0	24	0
142.	Naghsh Baf Co.	Textile	1978	0	CTC	21	0	0	0
143.	Abzar Mahdi Co.	Tools Manufacturer		0	0	0	0	0	0
144.	Iran Potk	Tools Manufacturer		0	0	0	0	0	0
145.	Iran Transfo	Transformer	1979	0	0	0	0	0	0
146.	Zamyad	Truck Manufacture	1963	0	Alread y Conver ted	0	0	0	0
147.	Khavar Co.	Truck Manufacture	1996	0	Alread y Conver ted	0	0	0	0
148.	Iran Kaveh Co.	Truck Manufacturer		0	Alread y Conver ted	0	0	0	0
149.	Iran Sanitary and Industrial Valves	Valves, and Fittings	1964	0	CTC/T CA	30	0	60	0
						1167	805	2331	1537
	Sub-Total CTC					1167	805		
	Sub-Total TCA							2331	1537
	Sub-Total CFC-113							81 (5+76)	
	Total					1167	805	2412	1537

Total ODP MT. Consumption (CTC ODP = 1.1, TCA ODP = 0.1 & CFC ODP = 0.8)				
	Declared MT	Estimated MT	Invoice Available MT	Total ODP (DCL. + EST.) MT
CTC	1167 ODP=1283.7	805 ODP = 885.5	995 ODP = 1094.5	2169.2
TCA	2412 ODP=242.2	1537 ODP = 153.7	849 ODP = 84.9	395.9
CFC	81 ODP = 64.8. (76 MT from Customs Records)	0	5	64.8
Total ODP	1590.7	1039.2	1184.4	2629.9

Note 1: Invoices are available for **1450.4 MT** of the declared quantities.

Note 2: Pars Electric is consuming 5 tone CFC-113 in spray cans, and Iran Compressor Manufacturing Company consuming 40 tone CFC-113.

Annex VI
List of Identified Enterprises in
Pharmaceutical Sector

Pharmaceutical Sector				
	Name	Date of Establishment	Export Amount	Location City
1	Atra	1967	0	Tehran Karaj Road
2	Arya	1956	0	Tehran Karaj Road
3	AbuRayhan	1969	0	Tehran Tehranpars
4	Osveh	1966	0	Tehran Kraj Road
5	Alborz Daru	1976	0	Gazvin/Alborz Industrial city
6	Alhavi	1965	0	Tehran Karaj Road
7	Anistitu Pastor	1920	0	Tehran Karaj Road
8	Iran Daru	1965	0	Tehran Azari
9	Iran Hormon	1965	0	Tehran Karaj Road
10	Behsa	1982	0	Arak Khomein
11	Behvazan	1980	0	Rasht Industrial City
12	Pars Daru	1970	0	Tehran Tehranpars
13	Pak Daru	1958	0	Tehran Karaj Road
14	Pour Sina	1959	0	Tehran Karaj Road
15	Tolid Daru	1956	0	Tehran Azari
16	Tehran Daru	1949	0	Tehran Karaj Road
17	Tehran Shimi	1962	0	Tehran Karaj Road
18	Samen	1984	0	Mashhad Gochan Road

19	Jaber-ebn-Hayyan	1960	0	Tehran Karaj Road
20	Jalinous	1977	0	Tehran Karaj Road
21	Hakim	1949	0	Tehran Shariati
22	Kharazmi	1963	0	Tehran Karaj Road
23	Daru Pakhsh	1963	0	Tehran Karaj Road
24	Razak	1964	0	Tehran Karaj Road
25	Ramin	1962	0	Tehran Karaj Road
26	Roos Daru	1936	0	Tehran Karaj Road
27	Zahravi	1986	0	Tabriz Tabriz - Tehran Road
28	Zakaryayeh Tabriz	1990	0	Tabriz Tabriz - Tehran Road
29	Sobhan	1976	0	Rasht Industrial City
30	Sina Daru	1967	0	Tehran Karaj Road
31	Saha Hellal	1970	0	Tehran Karaj Road
32	Sherkateh Daruie Keshvar	1942	0	Tehran Toohid Square
34	Shafa	1968	0	Tehran Vanak Square
35	Shahr Daro	1964	0	Tehran Hafez St.
36	Shahid Ghazi Tabriz	1985	0	Tabriz Tabriz - Tehran Road
37	Shimi Daruee Amin	1982	0	Esfahan Zobahan
38	Sanati Pars Minoo	1958	0	Tehran Karaj Road
39	Abidi	1946	0	Tehran Karaj Road
40	Farabi	1988	0	Esfahan

				Esfahan-Shiraz road
41	Farma Shimi	1956	0	Tehran Karaj Road
42	Faravardehaye Tazrighi Iran	1956	0	Tehran Shahid Rajae St.
43	Kousar	1974	0	Tehran Karaj Road
44	Kimi Daru	1963	0	Tehran Abali Road
45	Gostaresh Daruie	1997	0	Rasht Industrial City
46	Lorestan	1984	0	Brojerd Malard Road
47	Loghman	1969	0	Tehran Karaj Road
48	Modava	1973	0	Tehran Jomhori St.
49	Markaz Pazhohesh va Palayesh Khoon	1994	0	Tehran Sheikh fazlolah Nori
50	Mehr Daru	1958	0	Tehran Karaj Road
51	Antibutic Sazi Iran	1994	0	Tehran Jahad St
52	Mina	1951	0	Tehran Vanak Square

Pharmaceutical industry still to be surveyed.

In I.R. Iran only one project to phase out 10 MT CTC at Irandochark company has been successfully completed. No projects have been prepared for cleaning, textile or other industries

Important Note:

CTC, TCA and CFCs for solvent sector are imported in different names and brands, such as PD 680, Alten D6, Freon, Kelva, Methyl Chloroform, Paint Stripper, windshield cleaner and etc., therefore it is very difficult to trace them with their known Chemical Abbreviations,

Annex VII
List of Chemical Agent Distributor in Iran

Name	Reg. No	Date of Membership
Abas Babaeie khamene	11	5/4/2002
Abass Dooshiri		
Abass Dooshiri		
Abbas Javanmardi	8	23/3/2002
Abbas Zaeri	56	11/6/1995
Abdollah Molahassanhoseini	101	25/5/1997
Abdollah Zahraei		
Abolghasem Ezzati	125	15/6/1999
Abolhasan Raminfar		
Ahmad Abri	102	14/12/2003
Ahmad Jenarian		
Ahmad Khaksar		
Ahmad Molahassanhoseini	118	30/5/2002
Ahmad Rezapoor	81	13/9/2002
Akbar Kaedi	167	21/12/2003
Akbar Yaghoobian	80	20/7/1996
Akbar Zabayehi		
Ali Babaei	1	9/5/2002
Ali Babaei	65	20/7/1995
Ali Behdad		
Ali Daryabari	22	28/1/2002
Ali Herischi	46	5/10/2001
Ali Hoseingholian		
Ali Khaksar		
Ali Parastesh		
Ali Seraji		
Ali Taghizadeh	72	13/9/2002
Aliakbar Aghayanmirza	122	18/12/2003
Aliakbar Daryabari		
Aliakbar Daryabari		
Aliakbar Khalilarjomandi		
Aliakbar Nobakht	3	13/6/2002
Aliasghar Chenarian	105	5/9/1997
Alireza Barrokh		
Alireza Tavana	128	1/8/1999
Alireza Yari	52	5/10/2001
Almas Tejarat Monfared		
Amir Maghsoodi	94	15/10/1997

Amirhosein Jeldi		
Andishan Honar Trading co.		
Apadana Sanaat		
Aram Jahedan		
Asadollah Khajepiri		
Azar Fam Poudri		
Babak Namazi	161	29/10/2003
Badeolah Rahmanian		
Bahman Panahi	13	22/8/2002
Bahram Sohrab		
Bamshad Milad		
Behine Pakhsh Drajjshan		
Behnam Mohammadbagherian	137	6/5/2002
Behrooz Delavar		
Behrooz Mohammadi	139	9/5/2002
Dalbirsink Saheni	25	22/12/2002
Davood Poorshahlaei		
Ebrahim Forooghi	15	5/3/2002
Ebrahim Jafari		
Ebrahim Khalatabadi		
Eshagh Sadighmehraban	76	4/10/2003
Esmaeel Hoseinzadeh		
Esmaeel Hoseinzadeh		
Esmaeel Khadadi		
Esmaeel Rahbar		
Ezatollah Akbari	98	15/2/1997
Farhad Azarian		
Farhad Gholamrezaei	21	22/12/2002
Fariborz Badihi		
Farokh Riazsadri	34	23/11/2002
Farokh Shariatpanahi	31	14/9/2002
Farzad Barrokh		
Fazlollah Zareniestanak	49	15/9/2001
Forood Navaei	30	22/12/2002
Ghasem Darvish		
Ghasem Darvishkhezri	62	18/10/2003
Ghasem Javaheri		
Ghasem Panahgar		
Ghodratollah Zeinali	73	20/8/1995
Ghodratollah Zeinali		
Ghodratollah Zeinali		
Ghodratollah Zeinali		
Ghodratollah Zeynali		
Ghodratollah Zeynali		

Ghodratollah Zeynali		
Ghodratollah Zeynali		
Ghodratollah Zeynali		
Ghodratollah Zeynali		
Ghodratollah Zeynali		
Ghodratollah Zeynali		
Gholamali Sohrabnejhad		
Gholamhosein Azadi	126	15/6/1999
Gholamhosein Jafari		
Gholamreza Abootorab		
Gholamreza Akbarianrad	154	14/12/2003
Gholamreza Geranmaye	45	5/8/2002
Gholamreza Panahi		
Goodarz Khalatbari		
Hamid Sharifi		
Hamidreza Amolidiva	33	22/12/2002
Hamidreza Nazeri	48	5/10/2001
Hamidreza Taghizade		
Hamkar Shimi		
Hooshang Jamshidi		
Hosein Aghajani esfehani	64	20/7/1995
Hosein Cheraghi		
Hosein Esmaeeli		
Hosein Ghaseminiam	96	1/02/1997
Hosein Hafezi		
Hosein Joodshabestari		
Hosein Khoshdeli		
Hosein Namazi	2	15/8/2002
Hosein Rajabiamirabadi	60	11/6/1995
Hosein Rastegar		
Hosein Saedi		
Hosein Tahershams	135	14/5/2002
Hosein Tavana		
Hosein Tavana		
Hosein Vashtani	43	19/11/2002
Hoseinali Shirvani	71	20/8/1995
Hotash Shimi		
Iman Khoshhoodvand	160	27/1/2003
Iraj aliasgarafjei	51	5/10/2001
Iraj Jamali	144	21/2/2003
Jafar Roshani		
Jafar Shokati	7	23/3/2002
Jafar Taghizadeh ghooochani	67	20/7/1995
Jahangir Meisami	63	20/8/1995

Jalal Hoseini		
Jalal Khatir		
Jamal Hoseini		
Jamaloddin Abassian	112	15/5/1998
Jamshid Izadkhah		
Javad Hoseinbeigian	85	14/7/1996
Kalayeh Nour		
Kamal Salehi	12	5/8/2002
Khosro Rajabighazvini	134	2/4/2002
Kioomars Tajik		
Lotfollah Farsi	166	14/12/2003
Mahboob Gholizadeh	38	10/11/2002
Mahdi Dargahi	28	2/4/2002
Mahdi Hoseinmemar	53	14/9/2001
Mahdi Nobari	132	1/10/2001
Mahdi Shahmohammadmirab	58	9/5/2002
Mahmood Enshae	23	22/12/2002
Mahmood Hoseinmemar	54	15/9/2001
Mahmood Razaghi		
Mahnaz Rajabidanesh		
Majid Golabi	29	22/12/2002
Majid Nahvi	42	5/10/2002
Manoochehr Vatani	4	23/7/2002
Mansoor Mansoori	88	5/7/1996
Markaze Abkari Rahat		
Masood Shali	170	14/12/2003
Masooome Nakran	14	5/4/2002
Mehdi Taheri	74	20/8/1995
Mehr Shad Javid		
Mehrdad Darabi		
Mohammad Aliabadi	10	1/9/2002
Mohammad Aminikhoo		
Mohammad Barazandeh		
Mohammad Dadras		
Mohammad Jamshidi noori	36	10/11/2002
Mohammad Khaleghverdi		
Mohammad Khaleghverdi		
Mohammad Khalil arjomandi	86	5/7/1996
Mohammad Otari		
Mohammad Rajabipoor	127	5/7/1999
Mohammad Saberi	90	8/11/2003
Mohammad Yaghoobpoor	37	10/11/2002
Mohammad Yari	92	29/8/2002
Mohammadali Azizmohammadi	5	12/4/2002

Mohammadbagher Fayazbagheri	129	1/10/1999
Mohammadhosein Farjadi	82	2/4/2002
Mohammadhosein Heidari	59	15/8/2000
Mohammadreza Akbari		
Mohammadreza Geranmaye	113	1/7/1998
Mohammadreza Geranmaye	114	1/7/1998
Mohammadreza Labbaf		
Mohammadreza Noohi	17	11/2/2002
Mohasen Panahgar		
Mohsen Deljoo		
Mohsen Forooghi	133	10/11/2002
Mohsen Forooghi	91	10/9/1996
Mohsen Jamshidi	50	15/9/2001
Mohsen Karimian	100	15/4/1997
Mohsen Kharazan	20	19/3/2002
Mohsen Khodakaram	32	19/12/2002
Mohsen Poorebrahimi		
Morad Ahangar		
Morteza Arefi	16	14/1/2002
Morteza Arefi	93	1/10/1996
Morteza Tahershams	123	15/2/1999
Morteza Tajerian		
Moslem Heidari		
Mozaffar Roshani		
Mozahn Parto		
Nader Arbatan	57	16/9/2002
Nader Khoshbin		
Negar Mahan		
Nima Shimi		
Omran Akbarshahi		
Pakhsh Hamrah		
Pakhsh Kimia Sadaf		
Pakhsh Pushesh Tevknich		
Pars Medical		
Pars Nickel		
Parto Vasegh Trading Co.		
Parviz Kabiri	69	20/8/1995
Petro Shimi Gostar		
Puriya Payman Trating Co.		
Puya Meh Nasir		
Puyesh Majd Co.		
Rahim Bostandoost	66	4/4/2003
Rahim Bostandoost		
Rahmat Maleki	55	14/9/2001

Rahmotlah Rezaie		
Ramezan Daryabari		
Rangin Pushesh Shiraz		
Rasool Daryabari		
Reza Ansari		
Reza Khaksar		
Reza Khalilarjomandi		
Reza Moosavi	35	15/11/2002
Reza Rajaeenia		
Reza Tadayoni	68	1/10/2002
Reza Talebi	136	6/5/2002
Reza Tavana	110	8/10/2002
Reza Tavana		
Reza Zati		
Saeed Tarkhani	44	5/10/2001
Saeedreza Alirezaei	23	22/12/2002
Sahand Shimi		
Samangaran Sanaat		
Sanaati Soll		
Sazeh Gostar Afra		
Sepand Gostar Bahar		
Shahbanali Tavana		
Shahin Bahmanof	37	5/10/2001
Shahram esmaeeli	116	1/04/2003
Shahram Esmaeeli		
Shahram Hedayat	26	22/12/2002
Shimiaie Kaj		
Shimiaie Matin		
Soorat Mohammadkhobark	39	10/11/2002
Tajeran Dana Co.		
Tehran Nour Ara		
Vahid Gholizadeh	55	29/8/2002
Yadollah Najafi	40	7/11/2002
Yadollah Rezaei		
Yaghoob Zarghani		
Zaman Zamanzadeh		

Annex VIII

LIST OF INVOICES RECEIVED

Attachment Number	Enterprise Name			ODS (kg) Amount	ODS Price Rial / kg	Date of
1-1	Amen Sanaat	Parto Vasegh Trading Co.	CTC	4378	12500	2000
1-2	Amen Sanaat	Poya Mehr Nasir	CTC	5028	12350	2000
1-3	Amen Sanaat	Parto Vasegh	CTC	6134	12500	2000
1-4	Amen Sanaat	Puya Mehr Nasir Trading Co.	CTC	4937	12350	2000
1-5	Amen Sanaat	Parto Vasegh Trading Co.	CTC	6219	12480	2000
1-6	Amen Sanaat	Puya Mehr Nasir	CTC	5942	12370	2000
1-7	Amen Sanaat	Puya Payman Tejart	CTC	5854	12450	2000
1-8	Amen Sanaat	Parto Vasegh Trading Co.	CTC	7820	12480	2000
1-9	Amen Sanaat	Puya Payman Tejarat	CTC	5713	12450	2000
1-10	Amen Sanaat	Puya Mehr Nasir Trading Co.	CTC	6328	12370	2000
	Total ODS in 2000			58353		
1-11	Amen Sanaat	Puya Mehr Nasir Trading Co.	CTC	5941	12490	2001
1-12	Amen Sanaat	Parto Vasegh Trading Co.	CTC	6436	12550	2001
1-13	Amen Sanaat	Purya Payman Tejarat	CTC	5772	12590	2001

1-14	Amen Sanaat	Tajeran Dana	CTC	5324	12600	2001
1-15	Amen Sanaat	Behineh Pakhsh	CTC	6113	12620	2001
1-16	Amen Sanaat	Tajeran Dana	CTC	5880	12600	2001
1-17	Amen Sanaat	Mehr Shad Javid	CTC	5165	12640	2001
1-18	Amen Sanaat	Tajeran Dana	CTC	6987	12620	2001
1-19	Amen Sanaat	Purya Payman Tejarat	CTC	6368	12630	2001
	Total ODS in 2001			53986		
1-20	Amen Sanaat	Tajeran Dana	CTC	4252	12750	2002
1-21	Amen Sanaat	Behineh Pakhsh	CTC	6763	12790	2002
1-22	Amen Sanaat	Mehr Shad Javid	CTC	5428	12900	2002
1-23	Amen Sanaat	Behineh Pakhsh	CTC	4839	12850	2002
1-24	Amen Sanaat	Mehrshad Javid	CTC	4940	12900	2002
1-25	Amen Sanaat	Behineh Pakhsh	CTC	5321	12850	2002
1-26	Amen Sanaat	Tajeran Dana	CTC	6944	12920	2002
1-27	Amen Sanaat	Behineh Pakhsh	CTC	5015	12900	2002
1-28	Amen Sanaat	Tejarat Andishan	CTC	4317	13000	2002
1-29	Amen Sanaat	Mehr Shad Javid	CTC	5640	13000	2002
1-30	Amen Sanaat	Tejarat Andishan	CTC	6286	13050	2002
	Total ODS in 2002			59745		
2-1	Iran Esance	Hamrah	TCA	37500	12500	2000

	Total TCA				37500				2000
2-2	Iran Esance	Hamrah		CTC	7000		13200		2000
2-3	Iran Esance	Mozhan Parto		CTC	7500		11300		2000
2-4	Iran Esance	Kimia Sadaf		CTC	13100		11700		2000
2-5	Iran Esance	Kimia Sadaf		CTC	14750		11750		2000
	Total CTC				42350				2000
2-6	Iran Esance	Sahand Kimia		CTC	8800		11500		2001
2-7	Iran Esance	Kimia Sadaf		CTC	14050		11950		2001
2-8	Iran Esance	Kimia Sadaf		CTC	15500		11830		2001
2-9	Iran Esance	Kimia Sadaf		CTC	7000		13700		2001
	Total CTC				45350				2001
2-10	Iran Esance	Kimia Sadaf		TCA	30000		13500		2001
	Total TCA				30000				2001
2-11	Iran Esance	Mozhan Parto		CTC	9500		11500		2002
2-12	Iran Esance	Kimia Sadaf		CTC	14900		12250		2002
2-13	Iran Esance	Kimia Sadaf		CTC	14150		12300		2002
2-14	Iran Esance	Sepand Gostar		CTC	6500		12500		2002
	Total CTC				45050				

2-15	Iran Esance	Sepand Gostar	TCA	35000	12300	2002
	Total TCA			35000		2002
3-1	Butane Industries	Pushesh Technic	CTC	30000	15000	2000
3-2	Butane Industries	Pushesh Technic	CTC	38000	18000	2001
3-3	Butane Industries	Pushesh Technic	CTC	33000	28000	2002
4-1	Antibutic Iran	Parsa Shimi	CTC	1500	17000	2000
4-2	Antibutic Iran	Kaj Trading Co.	CTC	1500	16700	2001
4-3	Antibutic Iran	Hamkar Shimi	CTC	1500	16500	2002
4-4	Antibutic Iran	Pars Nickle	CTC	1500	16800	2002
	Total CTC in 2002			3000		
5-1	Casra Cosmetic	Kimia Sadaf	CTC	15550	11760	2000
5-2	Casra Cosmetic	Kimia Sadaf	CTC	15250	12000	2001
5-3	Casra Cosmetic	Kimia Sadaf	CTC	16200	12200	2002
5-4	Casra Cosmetic	Kimia Sadaf	TCA	8000	11500	2002
5-5	Casra Cosmetic	Mozhan Parto	TCA	9300	11700	2001
5-6	Casra Cosmetic	Mozhan Parto	TCA	8000	11000	2000
5-7	Casra Cosmetic	Kimia sadaf	TCA	9000	11000	2000

6-1	Iran Communication Manufacturing Co. (ICMC)	Rangin Push	CTC	16000	11800	2000
6-2	Iran Communication Manufacturing Co. (ICMC)	Rangin Push	TCA	50000	8800	2000
6-3	Iran Communication Manufacturing Co. (ICMC)	Rangin Push	CTC	20000	11900	2001
6-4	Iran Communication Manufacturing Co. (ICMC)	Rangin Push	TCA	55000	9100	2001
6-5	Iran Communication Manufacturing Co. (ICMC)	Rangin Push	CTC	20000	11900	2002
6-6	Iran Communication Manufacturing Co. (ICMC)	Rangin Push	TCA	55000	9100	2002
7-1	Electro Steel	Bamshad Milad	CTC	24000	15800	2002
7-2	Electro Steel	Bamshad Milad	CTC	17300	15500	2002
7-3	Electro Steel	Bamshad Milad	CTC	9200	15500	2002
	Total ODS 2002				46800	
7-5	Electro Steel	Negar Mahan	CTC	8000	14920	2001
7-6	Electro Steel	Bamshad Milad	CTC	10000	15000	2001
7-7	Electro Steel	Bamshad Milad	CTC	17200	15000	2001
7-8	Electro Steel	Bamshad Milad	CTC	12200	15200	2001
7-9	Electro Steel	Negar Mahan	CTC	18900	14800	2000
7-10	Electro Steel	Negar Mahan	CTC	13200	14500	2000
7-11	Electro Steel	Negar Mahan	CTC	13400	14500	2000

8-1	Iran Compressor Manufacturing Co.	Notash	CTC	20000	13500	2002
8-2	Iran Compressor Manufacturing Co.	Notash	CTC	20000	18000	2002
	Total ODS 2002			40000		
8-3	Iran Compressor Manufacturing Co.	Notash	CTC	13000	15000	2001
8-4	Iran Compressor Manufacturing Co.	Notash	CTC	25000	16000	2001
8-5	Iran Compressor Manufacturing Co.	Notash	CTC	15000	17000	2000
8-6	Iran Compressor Manufacturing Co.	Notash	CTC	20000	18000	2000
9-1	Tehran Arang	Sanaat Kalayeh Nour	CTC	11700	10000	2002
9-2	Tehran Arang	Sazeh Gostar Afra	CTC	19500	9500	2002
	Total ODS 2002			31200		
9-3	Tehran Arang	Samangarn Sanaat	CTC	13000	10500	2001
9-4	Tehran Arang	Almas Tejarat Monfared	CTC	12000	9800	2001
9-5	Tehran Arang	Almas Tejarat Monfared	CTC	25000	9800	2000
10-1	Tondar Shahab	Pars Nickle Co.	CTC	21000	13000	2002
10-2	Tondar Shahab	Pars Nickle Co.	CTC	15000	12000	2001

10-3	Tondar Shahab	Pars Nickle Co.	CTC	12000	11000	2000
11-1	Koban Kar	Rahmatollah Rezaie	CTC	20000	10100	2002
11-2	Koban Kar	Rahmatollah Rezaie	CTC	20000	10300	2001
11-3	Koban Kar	Rahmatollah Rezaie	CTC	20000	10500	2000
12-1	Chilan	Negar Mahan	CTC	7500	14920	2001
12-2	Chilan	Bamshad Milad	CTC	16000	15000	2001
12-3	Chilan	Bamshad Milad	CTC	9600	15000	2001
12-4	Chilan	Bamshad Milad	CTC	21100	15200	2001
12-5	Chilan	Negar Mahan	CTC	21000	14800	2000
12-7	Chilan	Negar Mahan	CTC	12150	14500	2000
12-8	Chilan	Negar Mahan	CTC	14300	14500	2000
12-9	Chilan	Bamshad Milad	CTC	12000	15500	2002
12-10	Chilan	Bamshad Milad	CTC	21000	15800	2002
12-11	Chilan	Bamshad Milad	CTC	14000	15500	2002
	Total ODS 2002			47000		
13-1	Kousar Co.	Soll Company	CTC	13500	10500	2002
13-2	Kousar Co.	Soll Company	CTC	6750	10000	2002
				20250		

13-3	Kousar Co.		Soll Company	CTC	19500	9000	2001
13-4	Kousar Co.		Soll Company	CTC	11750	8500	2000
13-5	Kousar Co.		Soll Company	CTC	9500	8500	2000
14-1	Eshtav Co.		Pushesh Technic	TCA	20000	16000	2000
14-2	Eshtav Co.		Pushesh Technic	CTC	10000	32000	2000
14-3	Eshtav Co.		Pushesh Technic	TCA	20000	18000	2001
14-4	Eshtav Co.		Pushesh Technic	CTC	10000	34000	2001
14-5	Eshtav Co.		Pushesh Technic	TCA	25000	18000	2002
14-6	Eshtav Co.		Pushesh Technic	CTC	10000	35000	2002
15-1	Babaie Electro Plating		Rahat Co.	CTC	12000	30000	2001
15-2	Babaie Electro Plating		Rahat Co.	CTC	10000	30000	2000
15-3	Babaie Electro Plating		Rahat Co.	CTC	15000	32000	2002
16-1	Anisi Elector Plating		Rahat Co.	CTC	20000	30000	2002
16-2	Anisi Elector Plating		Rahat Co.	CTC	15000	28000	2001
16-3	Anisi Elector Plating		Rahat Co.	CTC	15000	28000	2000
17-1	Kaveh Alyaf		Pushesh Technic	CTC	20000	18000	2002
17-2	Kaveh Alyaf		Pushesh Technic	CTC	20000	16000	2001
17-3	Kaveh Alyaf		Pushesh Technic	CTC	20000	16000	2000

18-1	Kasra Motorcycle	Rahat Co.	CTC	30000	20000	2002
18-2	Kasra Motorcycle	Rahat Co.	CTC	25000	18000	2000
18-3	Kasra Motorcycle	Rahat Co.	CTC	25000	16000	2000
19-1	Iran Regulator	Rahat Co.	TCA	50000	15000	2000
19-2	Iran Regulator	Shimiai Matin	CTC	24000	45000	2000
19-3	Iran Regulator	Rahat Co.	TCA	50000	15000	2001
19-4	Iran Regulator	Rahat Co.	CTC	25000	38000	2001
19-5	Iran Regulator	Rahat Co.	CTC	25000	30000	2002
19-6	Iran Regulator	Rahat Co.	TCA	60000	15000	2002
20-1	Iran Sanitary Valve	Pushesh Technic	TCA	50000	15000	2000
20-2	Iran Sanitary Valve	Pushesh Technic	CTC	30000	30000	2000
20-3	Iran Sanitary Valve	Pushesh Technic	TCA	60000	16000	2001
20-4	Iran Sanitary Valve	Pushesh Technic	CTC	25000	30000	2001
20-5	Iran Sanitary Valve	Pushesh Technic	CTC	30000	38000	2002
20-6	Iran Sanitary Valve	Pushesh Technic	TCA	60000	16000	2002
21-1	Amico Motor Cycle	Azar Fam Pudri	CTC	9000	10000	2002
21-2	Amico Motor Cycle	Azar Fam Pudri	CTC	6000	10000	2002
21-3	Amico Motor Cycle	Azar Fam Pudri	CTC	8000	9800	2002

21-4	Amico Motor Cycle	Azar Fam Pudri	CTC	6000	8500	2001
21-5	Amico Motor Cycle	Azar Fam Pudri	CTC	9000	9500	2001
21-6	Amico Motor Cycle	Azar Fam Pudri	CTC	8000	9000	2001
21-7	Amico Motor Cycle	Azar Fam Pudri	CTC	8000	9600	2002
21-8	Amico Motor Cycle	Azar Fam Pudri	CTC	8000	9600	2002
21-9	Amico Motor Cycle	Azar Fam Pudri	CTC	8000	9250	2002
				24000		
22-1	Chal Electric	Rahat Co.	CTC	5000	25000	2000
22-2	Chal Electric	Rahat Co.	TCA	15000	15000	2000
22-3	Chal Electric	Rahat Co.	CTC	15000	15000	2001
22-4	Chal Electric	Rahat Co.	TCA	5000	30000	2001
22-5	Chal Electric	Rahat Co.	CTC	5000	30000	2002
22-6	Chal Electric	Rahat Co.	TCA	20000	20000	2002
23-1	Ghofl Kar	Rahat Co.	CTC	10000	30000	2000
23-2	Ghofl Kar	Rahat Co.	TCA	30000	20000	2000
23-3	Ghofl Kar	Rahat Co.	CTC	12000	30000	2001
23-4	Ghofl Kar	Rahat Co.	TCA	30000	20000	2001
23-5	Ghofl Kar	Rahat Co.	CTC	10000	30000	2002
23-6	Ghofl Kar	Rahat Co.	TCA	30000	20000	2002

24-1	Zagross II	Malmiz Plastic	CTC	18000	11000	2000
24-2	Zagross II	Malmiz Plastic	CTC	12000	11000	2000
24-3	Zagross II	Ahmad Afshar Trading	CTC	14000	10500	2001
24-4	Zagross II	Malmiz Plastic	CTC	20000	10500	2001
24-5	Zagross II	Ahmad Afshar Trading	CTC	12000	11000	2002
24-6	Zagross II	Ahmad Afshar Trading	CTC	23000	11000	2002
25-1	Pourangan Co.	Soll Co.	CTC	80000	10000	2000
25-2	Pourangan Co.	Soll Co.	TCA	40000	9500	2000
25-3	Pourangan Co.	Soll Co.	CTC	10500	11000	2000
25-4	Pourangan Co.	Soll Co.	TCA	35000	10000	2000
25-5	Pourangan Co.	Puyesh Majd Co.	CTC	120000	11000	2001
25-6	Pourangan Co.	Puyesh Majd Co.	TCA	63000	10500	2001
25-7	Pourangan Co.	Puyesh Majd Co.	CTC	90000	12000	2001
25-8	Pourangan Co.	Puyesh Majd Co.	TCA	20000	10000	2001
25-9	Pourangan Co.	Soll Co.	CTC	130000	11000	2002
25-10	Pourangan Co.	Soll Co.	TCA	50000	10500	2002
25-11	Pourangan Co.	Soll Co.	CTC	60000	11000	2002
26-12	Pourangan Co.	Soll Co.	TCA	10000	10500	2002
27-1	Rahnama Shimi	Mehr Gostar Khjasteh	CTC	6000	28000	2000
27-2	Rahnama Shimi	Mehr Gostar Khojasteh	TCA	3000	16000	2000

27-3	Rahnama Shimi	Mehr Gostar Khojasteh	CTC	4000	28000	2000
27-4	Rahnama Shimi	Mehr Gostar Khojasteh	TCA	2000	16000	2000
27-5	Rahnama Shimi	Karpardaze Fajre Shargh	CTC	4000	30000	2001
27-6	Rahnama Shimi	Karpardaze Fajre Shargh	TCA	3000	19000	2001
27-7	Rahnama Shimi	Karpardaze Fajre Shargh	CTC	7000	30000	2001
27-8	Rahnama Shimi	Karpardaze Fajre Shargh	TCA	3000	19000	2001
27-9	Rahnama Shimi	Payman Tejarat Golpa	CTC	10000	31000	2002
27-10	Rahnama Shimi	Payman Tejarat Golpa	TCA	6000	20000	2002
28-1	Fayyazi Paint Stripping Co.	Nima Shimi	CTC	10000	35000	2000
28-2	Fayyazi Paint Stripping Co.	Nima Shimi	CTC	10000	35000	2001
28-3	Fayyazi Paint Stripping Co.	Nima Shimi	CTC	10000	36500	2002
29-1	Pushineh Baft	Sahand Shimi	CTC	48000	12500	2000
29-2	Pushineh Baft	Sahand Shimi	CTC	51000	12000	2001
29-3	Pushineh Baft	Sahand Shimi	CTC	50000	12500	2002
30-1	Nakh Alborz	Malmiz Plastic	CTC	26000	11000	2000
30-2	Nakh Alborz	Malmiz Plastic	CTC	23000	12500	2001
30-3	Nakh Alborz	Malmiz Plastic	CTC	25000	12000	2002
31-1	Cable Alborz	Pouyesh Majd	TCA	65000	10000	2000

31-2	Cable Alborz	Pouyess Majd	TCA	60000	10000	2000
31-3	Cable Alborz	Pouyesh Majd	TCA	90000	9800	2001
31-4	Cable Alborz	Pouyesh Majd	TCA	35000	9800	2001
31-5	Cable Alborz	Soll Co.	TCA	20000	10500	2002
31-6	Cable Alborz	Soll Co.	TCA	100000	10500	2002
32-1	Mehvar Sazan Iran	Sahand Shimi	CTC	22000	11000	2000
32-2	Mehvar Sazan Iran	Sahand Shimi	TCA	48000	10500	2000
32-3	Mehvar Sazan Iran	Sahand Shimi	CTC	25000	11000	2001
32-4	Mehvar Sazan Iran	Sahand Shimi	TCA	50000	10000	2001
32-5	Mehvar Sazan Iran	Sahand Shimi	CTC	25000	12000	2002
32-6	Mehvar Sazan Iran	Sahand Shimi	TCA	45000	10000	2002
33-1	Bahman Khodro	Simab Poushesh	TCA	30000	9800	2000
33-2	Bahman Khodro	Simab Poushesh	TCA	98000	9800	2000
33-3	Bahman Khodro	Simab Poushesh	TCA	120000	10000	2001
33-4	Bahman Khodro	Simab Poushesh	TCA	29000	10000	2001
33-5	Bahman Khodro	Simab Poushesh	TCA	60000	10500	2002
33-6	Bahman Khodro	Simab Poushesh	TCA	85000	10500	2002
34-1	Chassi Sazi Iran	Simab Poushesh	CTC	32000	12000	2000
34-2	Chassi Sazi Iran	Simab Poushesh	CTC	33000	12500	2001

34-3	Chassi Sazi Iran	Simab Poushesh	CTC	35000	13000	2002
35-1	Rikhtegari Iran	Simab Poushesh	TCA	85000	10000	2000
35-2	Rikhtegari Iran	Simab Poushesh	TCA	35000	10000	2000
35-3	Rikhtegari Iran	Simab Poushesh	TCA	98000	11000	2001
35-4	Rikhtegari Iran	Simab Poushesh	TCA	35000	11000	2001
35-5	Rikhtegari Iran	Simab Poushesh	TCA	120000	11000	2002
36-1	Counter Sazi Iran	Sahand Shimi	CTC	28000	11000	2000
36-2	Counter Sazi Iran	Sahand Shimi	TCA	35000	10000	2000
36-3	Counter Sazi Iran	Sahand Shimi	CTC	32000	11000	2001
36-4	Counter Sazi Iran	Sahand Shimi	TCA	40000	10000	2001
36-5	Counter Sazi Iran	Sahand Shimi	CTC	35000	12000	2002
36-6	Counter Sazi Iran	Sahand Shimi	TCA	40000	11000	2002
37-1	Pars Electric	Pishro Shimi Gostar	CFC-113	5000	16000	2002
37-2	Pars Electric	Pishro Shimi Gostar	TCA	20000	12000	2002
38-1	Arminco Company	Vesal Distributor	TCA	22500	17000	2000
38-2	Arminco Company	Vesal Distributor	TCA	23000	17650	2001
38-3	Arminco Company	Vesal Distributor	TCA	25000	17000	2002

39-1	Azhir Company		Poyan Etemad	TCA	18000	14000	2000
39-2	Azhir Company		Poyan Etemad	TCA	22000	14000	2000
39-3	Azhir Company		Poyan Etemad	TCA	24000	14500	2001
39-4	Azhir Company		Poyan Etemad	TCA	19000	14500	2001
39-5	Azhir Company		Poyan Etemad	TCA	45000	15000	2002
40-1	Subcool Company		Nico Chemical	TCA	30000	8400	2000
40-2	Subcool Company		Nico Chemical	TCA	33000	8500	2001
40-3	Subcool Company		Nico Chemical	TCA	37500	8500	2002
41-1	Vahid Company		Nico Chemical	TCA	18000	8400	2000
41-2	Vahid Company		Nico Chemical	TCA	20000	8500	2001
41-3	Vahid Company		Nico Chemical	TCA	22500	8500	2002
42-1	Tabarok Company (Shahdad)		Bahar Avaran Company	TCA	20000	13000	2001
42-2	Tabarok Company (Shahdad)		Bahar Avaran Company	TCA	23000	14000	2002
42-3	Tabarok Company (Shahdad)		Bahar Avaran Company	TCA	25000	15000	2003
43-1	Lamp Alvand		Sahand Chimi	CTC	3000	13000	2000
43-2	Lamp Alvand		Sahand Chimi	CTC	8000	13000	2000
43-3	Lamp Alvand		Sahand Chimi	CTC	4000	14000	2001
43-4	Lamp Alvand		Sahand Chimi	CTC	9000	14000	2001

43-5	Lamp Alvand	Sahand Chimi	CTC	10000	15000	2002
43-6	Lamp Alvand	Sahand Chimi	CTC	5000	15000	2002
44-1	Tajik Electroplating	Camyar Metal Industries	CTC	25000	30000	2000
44-2	Tajik Electroplating	Camyar Metal Industries	CTC	25000	30000	2001
44-3	Tajik Electroplating	Camyar Metal Industries	CTC	25000	30000	2002
45-1	Vala Fan Company	Camyar Metal Industry	TCA	30000	28000	2000
45-2	Vala Fan Company	Camyar Metal Industry	TCA	30000	28000	2001
45-3	Vala Fan Company	Camyar Metal Industry	TCA	35000	36000	2002
46-1	Tajik Die Casting Co	Camyar Metal Industry	TCA	30000	30000	2000
46-2	Tajik Die Casting Co	Camyar Metal Industry	TCA	32000	30000	2001
46-3	Tajik Die Casting Co	Camyar Metal Industry	TCA	36000	36000	2002
	Total			1450400 Kg.		