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Executive Committee of the
Interim Multilateral Fund for the
Implementation of the Montreal Protocol

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Montreal, 18-22 November 1991

CONTRIBUTION IN KIND

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1. By establishing the Interim Financial Mechanism, the London meeting of the Parties to the Montreal Protocol stipulated in its decision II/8 that the Multilateral Fund shall be financed by contributions, from Parties not operating under Article 5 Paragraph 1, in convertible currency or, in certain circumstances, in-kind and/or in national currency, on the basis of the United Nations scale of assessments.
2. The Third Meeting of the Executive Committee of the Interim Multilateral Fund, Montreal, 15-19 April 1991, approved the implementation guidelines and criteria for project selection which provide, inter-alia, that all technical assistance and pre-investment activities shall be provided in the form of grants, loans or, in certain circumstances, in-kind support. At the request of countries operating under Article 5, paragraph 1, in-kind support can be provided in the form of expert personnel, technology, technical documentation and training.
3. The agreements, between the Executive Committee, UNDP and UNEP, have been adopted by the fourth meeting of the Executive Committee (Nairobi, 17-18 June 1991) which specify that eligible 'in-kind' support can be provided in the form of expert personnel, technology, technical documentation and training under projects or programmes implemented by UNEP and UNDP.
4. The representative of the USSR declared at the second and third meetings of the Executive Committee that contribution of his country to the Fund would be in-kind.
5. The Soviet Union formally approached the Secretariat and UNEP, as treasurer of the Fund, informing them of the availability of certain technologies pertaining to some HCFC and HFC production and to halon recycling. Information was provided showing that research and development for replacing halons as fire extinguishers by ozone-safe substances has been finalized and this technology could be made available as in-kind contribution from USSR. Soviet experts, training, workshops and seminars for the benefit of countries operating under Article 5 paragraph 1 were proposed as part of such in-kind contribution. The relevant documents were distributed during the third and fourth meetings of the Executive Committee, and are included as Annexes I and II to this document.
6. Contributions of the USSR, the Ukrainian SSR and the Byelorussian SSR amount to 13,62 percent of the Fund, which is equivalent to a total of US dollars 26.8 million, subject to reconsideration due to the secession of the Baltic Republics. Even then, the portion of the Soviet Unions's contribution to the Fund remains substantial. Since the Multilateral Fund is often used as a "model", any decision on in-kind contributions could set a precedent for other international financial mechanisms. The modalities of implementation of in-kind contribution need to be discussed by the Executive Committee in order to agree on a general approach.
7. In-kind contribution can be channelled either through bilateral assistance or through one of the present implementing agencies, or through a national agency designated by the donor country.

Through bilateral co-operation

8. In accordance with decision II-8 of the second meeting of the Parties, in-kind contribution through bilateral assistance may, up to twenty percent and consistent with any criteria specified by decision of the Parties, be considered as a contribution to the Interim Multilateral Fund. The specific requirements and criteria for assessment of bilateral assistance, including in-kind contribution, are contained in the document prepared by the Secretariat for agenda item 9 of this meeting (UNEP/OzL.Pro/ExCom/5/11). Assuming that the twenty percent ceiling will be met through bilateral assistance, the remaining eighty percent can be channelled either through one of the current implementing agencies or through a national agency.

Through the Implementing Agencies (UNDP, UNEP)

9. The donor country, while offering the in-kind contribution which can be in the form of technology, technical documentation, equipment, CFC substitutes, expert personnel and training, may approach UNDP, or UNEP for the purpose of using their expertise in implementing this in-kind contribution.
10. The donor country should notify the Fund Secretariat of any agreement reached with either one or both of these two agencies. The donor country should notify the Fund Secretariat with all relevant documentation attesting to this agreement.
11. The implementing agencies should indicate in their work programmes the nature, extent and value of any in-kind contribution to be implemented by them.
12. The implementing agency should establish a dialogue with the recipient and donor countries and negotiate the confidentiality and proprietary rights issues in case of technology transfer. The implementing agency should ensure compliance of the contribution with recipient country requirements.
13. The Executive Committee shall take final decision whether to approve or disapprove the implementation of the in-kind contribution proposal as included in the work programme of the implementing agency concerned.
14. The implementing agency shall inform the Executive Committee of the implementation of the in-kind contribution in its regular progress reports.

Through a national agency

15. The Executive Committee agreed at its third meeting "that regional and national agencies were in principle not excluded from being considered as implementing agencies provided that they were invited to co-operate with the Committee and were considered by it to have the requisite expertise" (UNEP/OzL.Pro/ExCom/3/18 Rev.1).

16. A Party not operating under Article 5 paragraph 1 should propose to the Executive Committee a national entity for consideration by the Committee as an implementing agency for its in-kind contribution.
17. If the credentials of this national entity attest to its competence as an implementing agency, an agreement (similar to those between the Executive Committee and the present implementing agency) between it and the Executive Committee for the implementation of in-kind contribution should be reached.
18. In view of the fact that the USSR contribution to the Fund is not available in the form of hard currency payments, which represents about 13 percent of the Fund total budget, the Executive Committee may need to assess this impact on the realization of the Fund programme while formulating its long-term policy in terms of disbursement of available resources.
19. The Executive Committee may wish to request its subcommittee to draft relevant guidelines on in-kind contributions, as part of the Implementation Guidelines and Criteria for Project Selection.

ANNEX I

PROPOSALS ON THE CONTRIBUTION OF THE SOVIET UNION TO THE INTERIM MULTILATERAL FUND FOR THE IMPLEMENTATION OF THE MONTREAL PROTOCOL

During the second conference of the Montreal Protocol Parties which deals with the substances destroying the ozone layer (held 27-29 June 1990, in London) the amendment to the Protocol on the creation of an International Fund of assistance to developing countries, to help them meet the provisions of the Montreal Protocol was adopted. A goal of \$240 million was set for a three-year period. It was decided, that the Fund would be financed mainly by developed countries in conformity with the scale of payment adopted in the UN.

The Soviet Union offered to make its contribution to the International Fund in the form of technical services, namely: transfer of technology (technical documents) production of alternative freons, consultations and seminars on the use of alternative freons.

The Soviet Union has decided to undertake technical assistance to developing countries by transferring technology to them.

In the USSR effective technologies of production of alternative freons (CF_3HCl , CF_2ClCH_3 , CF_3H , $\text{CF}_3\text{H-CH}_3$, $\text{CF}_3\text{-CFH}_2$, CF_2H_2 and etc.) have been or are being developed.

Technical documentation, viz, initial data on ozone-safe freons production technology to developing countries, for transfer at their request, is being carried out on a scale necessary for industrial production designing.

A list of technologies developed by the Soviet Union and possible terms of technical documentation on these technologies transfer are presented in Table 1.

TABLE 1

No. Name of freons	Chemical formula	Terms of documentation transfer (year)
1. R-22	CF_3HCl	1991
2. R-142b	$\text{CF}_2\text{Cl-CH}_3$	1991
3. R-23	CF_3H	1991
4. R-152	$\text{CF}_3\text{H-CH}_3$	1992
5. R-141	$\text{CCl}_2\text{F-CH}_3$	1992
6. R-123	$\text{CF}_3\text{CCl}_2\text{H}$	1993
7. R-134a	$\text{CF}_3\text{-CFH}_2$	1993
8. R-32	CF_2H_2	1993

The following sections will be included into the body of initial data on ozone-safe freons technology:

- | | |
|-------------|--|
| SECTION 1. | A brief annotation on the results of scientific-research and experimental work. |
| SECTION 2. | Technical data on initial raw materials, auxiliary materials and end products. |
| SECTION 3. | Physical and chemical constants and properties of initial, intermediate and end products. |
| SECTION 4. | Chemical behaviour, physical and chemical basis and the principal flow chart of production. |
| SECTION 5. | Operation technological parameters of production. |
| SECTION 6. | Material balance of production. |
| SECTION 7. | Technical data on by-products and utilizable wastes. Fields of their employment and methods of utilization. |
| SECTION 8. | The necessary data for calculation, designing and choice of basic industrial technological equipment and protection of building structures. |
| SECTION 9. | Recommendations for production automation design. |
| SECTION 10. | Analytical control of production. |
| SECTION 11. | Methods and technological parameters of purification of chemically and mechanically polluted sewage, rendering harmless gaseous emissions and liquidation of detrimental wastes. |
| SECTION 12. | Safety measures, industrial sanitation and fire prevent. |

The transfer of technical documentation to a developing country is made, according to the contract, with a confidential agreement of non-divulgence of the Know-How of the technology transferred.

The work on designing and technical assistance in the process of assimilation of the technology transferred are carried out by the Soviet party on a commercial basis. In case of carrying out of this stage of work by third countries the Soviet Union takes no responsibility as to the resulting design output or product quality. Also, if the Soviet party takes part in creation of the plant, a quota participation in dividends is stipulated.

When the technical documentation is being transferred to a DC, the former's value in hard currency is determined. Into the costs of technical documentation are included: the SU's expenditures on conducting the scientific-research and experimental-designing work, preparation of initial data for industrial production designing, as well as the cost of Know-How on the technology being transferred. The amount of the SU's technical assistance to DC's will constitute its share which is defined by the Montreal Protocol.

Technical propositions technology transfer to developing countries in 1991 are presented in Appendix 1, 2, 3, 4.

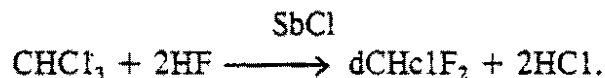
APPENDIX 1

TECHNICAL PROPOSAL ON DIFLUOROMONOCHLOROMETHANE (CF₂HCl) PRODUCTION TECHNOLOGY

1. GENERAL

The difluoromonochloromethane (R-22) production method was developed by MGO "Technochim", Leningrad, and tested on the pilot plant as well as on the industrial scale.

The method of difluoromonochloromethane production is based on hydrofluorination of chloroform in presence of antimony pentachloride catalyst according the equation:



The technical advantages of this method are the simplicity of technical implementation and a high quality of difluoromonochloromethane produced.

2. PROCESS DESCRIPTION

The process of production of difluoromonochloromethane consists of following stages:

- 2.1. Synthesis of CF₂HCl.
- 2.2. Emission of HCl.
- 2.3. Separation of high temperature boiling admixtures.
- 2.4. Neutralization of acidic admixtures.
- 2.5. Desiccation of raw freon.
- 2.6. Formation of the product.

2.1. Synthesis of CF₂HCl

Synthesis difluoromonochloromethane is carried out in a reactor at a high temperature and under compression, in presence of antimony pentachloride catalyst. On leaving the reactor gases of the synthesis are being cooled in the heat exchanger.

As the catalyst depletes, it is turned from the reactor to neutralization.

2.2 Emission of hydrogen chloride

Hydrogen chloride emission from the reaction mixture is brought about by method of rectification in a plate-type column under a high pressure. The hydrogen chloride is transported for production of hydrochloric acid.

2.3 Separation of high-temperature boiling admixtures is carried out by the method of rectification in a plate-type column under a high pressure. The mix of products removed from the cube is returned to the synthesis. The distillate of freons is taken to neutralization.

2.4 Neutralization of acidic admixtures which are present in raw freons is carried out by soda solution in the column under a high pressure.

2.5 Desiccation of raw freons is carried out by alumina gel in the column under a pressure.

2.6 Formation of the end product

Formation of R-22 is carried out in two fractionating towers.

3. PRODUCTION OUTPUT

The amount of freon-22 turned out is 10,000 tonnes per year.

4. TECHNICAL DATA OF THE END PRODUCT

Difluoromonochloromethane (CF_2HCl) should meet the following requirements:

- contents of CF_2HCl , not less than	99.9% vol.
- contents of moisture, not more than	0.001% weight.
- contents of acid	none

5. TECHNICAL DATA OF THE BASIC RAW MATERIALS

Chloroform:

- contents of chloroform	99.9%
- contents of impurities defined chromatographically, not more than	0.04%

Hydrogen fluoride

- contents of HF, not less than	99.89%
- contents of moisture, not more than	0.06%

6. CONSUMPTION COEFFICIENTS
FOR THE BASIC RAW MATERIALS

Name	Unit of Measurement	Consumption coefficient for 1 tonne of the product
Hydrogen fluoride	kg	520
Chloroform	kg	1,450

7. MAJOR ATTENDING PERSONNEL

Occupations	Number of Persons for one shift
Shift Chief: engineer	1
Major workers:	
operators	4
laboratory assistants	3

Note: in the present technical proposal only major plant personnel is defined, without mentioning engineering and technical workers and auxiliary personnel. These may be defined at the next designing stage with considerations of the control network on a concrete construction site.

8. MAIN ARRANGEMENT DECISIONS

Production units are located on the open tower platforms and inside the building. The assembly of facilities is carried out considering the importance of most rational connections between separate process stages and convenience of attendance.

9. THE FUND OF WORKING TIME

The plant has a continuous regime of operation comprising 7,920 hours per year, with four six-hour shifts a day.

10. PRODUCTION WASTE PER ONE TONNE OF FREON-22

1. Antimony oxides	5 kg
2. Hydrochloric acid 22.0-27.0% weight	3,400 kg
3. Waste soda	1,300 kg
4. Sewage	100 kg
5. Gas relief	41 kg

11. GUARANTEES

Productivity, end product quality, consumption of raw and auxiliary materials and forms of energy are guaranteed provided that the plant is mounted and operating according to the project which has been performed in the Soviet Union, and is regularly supplied with raw materials and energy agents which meet necessary requirements of quality and parameters.

APPENDIX 2

TECHNICAL PROPOSAL ON DIFLUOROMONO-
CHLOROETHANE (CF₂ClCH₃) PRODUCTION
TECHNOLOGY

1. GENERAL

The difluoromonochloroethane (R-142b) production method was developed by MGO "Technochim", Leningrad, and tested on a pilot plant as well as on the industrial scale.

The method of difluoromonochloroethane production is based on vinylidene chloride hydrofluorination in presence of tin tetrachloride as a catalyst according the equation:



The technical advantages of this method are the simplicity of technical implementation and a high quality of R-142b produced.

2. PROCESS DESCRIPTION

The process of difluoromonochloroethane production consists of the following stages:

- synthesis of 1,1-difluoro-1-chloroethane and hydrogen fluoride catching.
- purification of reactionary gases from the acidic admixtures.
- compression and condensation 1,1-difluoro-1-chloroethane
- formation of end product.

2.1 Synthesis of 1,1-difluoro-1-chloroethane and hydrogen fluoride catching

Synthesis of 1,1-difluoro-1-chloroethane is carried out in a reactor at a high temperature and under compression in presence of tin tetrachloride as a catalyst. On leaving the reactor gases of the synthesis are being cooled in the heat exchanger and then led to the catching system for catching of the rest of hydrogen fluoride under a low temperature. The condensated hydrogen fluoride is returned to the synthesis.

As the catalyst depletes, it is turned from the reactor to neutralization.

2.2 Purification of reactionary gases from the acid admixtures

The reactionary gases after condensation of hydrogen fluoride are turned to absorption of residual hydrogen fluoride by hydrogen chloride with singling out a mixture of acids. The named mixture is then returned to absorption by water with singling out of hydrogen chloride with concentration not less than 29% mass.

The reactionary gases after purification from the main quantity of hydrogen chloride and hydrogen fluoride are turned to neutralization.

The reactionary gases after neutralization are collected in the gas-holder.

2.3 Compression and condensation of raw 1,1-difluoro-1-chloroethane

The raw product from the gas-holder is led to the condenser by means of a compressor, where it condenses and joins the collector with brine pipe cooling.

The raw product is led from the collector through drying apparatus to rectifying column for formation of the end product.

2.4 Formation of the end product

Formation of 1,1-difluoro-1-chloroethane is carried out non-stop in two rectifying columns.

3. PRODUCTION OUTPUT

The amount of 1,1-difluoro-1-chloroethane produced - 2000 tonnes a year.

4. TECHNICAL DATA ON THE END PRODUCT

1,1-difluoro-1-chloroethane should meet the following requirements:

- | | |
|--|-------------|
| - contents of 1,1-difluoro-1-chloroethane, not less than | 99.95% vol. |
| - contents of moisture, not more than | 0.004% vol. |
| - contents of acid | none |

5. TECHNICAL DATA ON THE BASIC RAW MATERIALS

Vinylidene chloride:

- | | |
|--|-------------|
| - contents of vinylidene chloride, not less than | 99.95% vol. |
|--|-------------|

Hydrogen fluoride:

- | | |
|--|--------|
| - contents of hydrogen fluoride, not less than | 99.95% |
| - contents of moisture, not more than | 0.06% |

6. CONSUMPTION COEFFICIENTS FOR THE BASIC RAW MATERIALS

Name	Measurement unit	Consumption coefficient for 1 tonne of the product
Vinylidene chloride	kg	1060
Hydrogen fluorole	kg	580
Tin tetrachloride	kg	0.00027

7. MAJOR ATTENDING PERSONNEL

Occupations	Number of persons for one shift
Shift chief: engineer	1
Major workers:	
operators	4
Laboratory assistants	3

Note: in the present technical proposal only major plant personnel is defined without mentioning engineering and technical workers and auxiliary personnel. Number of these may be defined at the next designing stage with considerations of the control network on a concrete construction site.

8. MAIN ARRANGEMENT DECISIONS

Production units are located on the open tower platforms and inside the building. The assembly of facilities is carried out considering the importance of the most rational connections between separate process stages and convenience of attendance.

9. THE FUND OF WORKING TIME

The plant has a continuous regime of operation comprising 7920 hours per year, with four six-hour shifts a day.

10. PRODUCTION WASTE PER ONE TONNE OF 1,1-DIFLUORO-1-CHLOROETHANE

1. Neutralized used catalyst (solid)	0.01 kg
2. Desiccant	0.025 kg
3. Sewage	165 kg
4. Gas relief	40.7 kg
5. Hydrochloric acid 30%	1230 kg
6. Mixture of hydrofluoric and hydrochloric acids	200 kg

11. GUARANTEES

Productivity, end product quality, consumption of raw and auxiliary materials and forms of energy are guaranteed provided that the plant is mounted and operated according to the project which has been performed in the Soviet Union, and is regularly supplied with raw materials and energy agents which meet necessary requirements of quality and parameters.

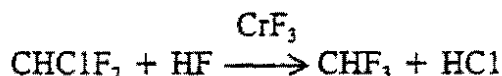
APPENDIX 3

TECHNICAL PROPOSAL ON TRIFLUOROMETHANE PRODUCTION TECHNOLOGY

1. GENERAL

The trifluoromethane (R-23) production method was developed by MGO "Technochim", Leningrad, and tested on the pilot plant as well as on the industrial scale.

The method of trifluoromethane production is based on hydrofluorination of difluorochloromethane (R-22) in presence of chromic fluoride catalyst according the equation:



The technical advantages of this method are the simplicity of technical implementation and a high quality of trifluoromethane produced.

2. PROCESS DESCRIPTION

The process of trifluoromethane production consists of the following stages:

- synthesis of trifluoromethane;
- production of hydrochloric acid;
- neutralization of acidic admixtures;
- desiccation of raw freon;
- formation of the product.

2.1 Synthesis of trifluoromethane

Synthesis of trifluoromethane is carried out in a reactor at a high temperature in presence of chromic fluoride catalysts. On leaving the reactor gases of the synthesis are being cooled in the heat exchanger.

As the catalyst depletes, it is turned from the reactor to neutralization.

2.2 Production of hydrochloric acid

Hydrogen chloride is separated from trifluoromethane by water absorption in the carbon absorbing apparatus.

2.3 Neutralization of acidic admixtures which are present in a raw freon is carried out by soda solution in the column.

2.4 Desiccation of a raw freon is carried out by alumina gel in the column.

2.5 Formation of the end product Formation of R-23 is carried out in two fractionating towers.

3. PRODUCTION OUTPUT

The amount of R-23 is ca. 2,000 tonnes per year.

4. TECHNICAL DATA OF THE END PRODUCT

Trifluoromethane should meet the following requirements:

- contents of trifluoromethane, not less than 99.98 % vol.
- contents of moisture, not more than 0.001 % weight
- contents of acid - not more than normal

5. TECHNICAL DATA OF THE BASIC RAW MATERIALS

Difluorochloromethane

- contents of difluorochloromethane 99.9 %
- contents of moisture 0.001 % weight

Hydrogen fluoride

- contents of hydrogen fluoride,
not less than 99.98 %
- contents of moisture, not more than 0.06 %

6. CONSUMPTION COEFFICIENTS FOR THE BASIC RAW MATERIALS

Name	Measurement unit	Consumption coefficient for 1 tonne of the product
Hydrogen fluoride	kg	330
Difluorochloromethane	kg	1450

7. MAJOR ATTENDING PERSONNEL

Occupations	Number of Persons for one shift
Shift Chief: engineer	1
Major workers:	
operators	3
laboratory assistants	3

Note: in the present technical proposal only major plant personnel is defined, without mentioning engineering and technical workers and auxiliary personnel. These may be defined at the next designing stage with considerations of the control network on a concrete construction site.

8. MAIN ARRANGEMENT DECISIONS

Production units are located on the open tower platforms and inside the building. The assembly of facilities is carried out considering the importance of most rational connections between separate process stages and convenience of attendance.

9. THE FUND OF WORKING TIME

The plant has a continuous regime of operation comprising 7,920 hours per year, with four six-hour shifts a day.

10. PRODUCTION WASTE PER ONE TONNE OF R-23

1. Hydrochloric acid	1800 kg
2. Spent catalyst	2 kg
3. Spent aluminium oxide	1.5 kg

11. GUARANTEES

Productivity, end product quality, consumption of raw and auxiliary materials and forms of energy are guaranteed provided that the plant is mounted and operating according to the project which has been performed in the Soviet Union, and is regularly supplied with raw materials and energy agents which meet necessary requirements of quality and parameters.

ANNEX II

TECHNICAL PROPOSAL ON THE TECHNOLOGY OF HALON REGENERATION (HALONS 1301, 1211, 2402)

1. GENERAL

During the Third Meeting of the Executive Committee of the Interim Multilateral Fund on the Implementation of the Montreal Protocol, the USSR Representative distributed the document with the proposal on the USSR contribution in kind to the Fund. The concrete proposals on the technology of production of a number of CFC substitutes, as well as Halon 1211 regeneration, were included in that document.

In the present document, additional information is given on the universal technology of halons 1301, 1211 and 2402 regeneration.

The halons regeneration method was developed by MGO "Technochim", Leningrad, and tested on the pilot plant as well as on the industrial scale (fixed and portable installations).

During the long storage halons change their properties. Acidity in the product appears, caused by the presence of moisture, mechanical admixtures and so on. Examination of the gas-bag is therefore combined with the regeneration of halons. The method of regeneration is based on neutralization of acidic mixture (HBr, Br₂), product draining, and purification from mechanical admixtures.

The technical advantages of this method are simplicity of technical implementation, and high quality of regenerated halons.

2. PROCESS DESCRIPTION

The process of halons regeneration consists of the following stages (see Figure attached);

- 2.1 Neutralization of acidic admixtures by the solid adsorbent;
- 2.2 Adsorption purification of halons by activated coal;
- 2.3 Desiccation of halons by the adsorbents;
- 2.4 Filtration of halons from mechanical admixtures;
- 2.5 Analysis of regenerated product for conformity to demands of technical implementation;
(Note: Depending on demands on the plant, additional stages may be provided);
- 2.6 Emptying the fire-extinguisher from the halons;

2.7 Charging of the fire-extinguishers by regenerated products.

Regeneration of halons provides sorption of undesirable admixtures by solid adsorbent; for this purpose halon subjected to regeneration is passed through three columns filled with adsorbent at a fixed speed, and through the filter. The process is conducted under pressure to 10.0 MPa. After saturation the part of sorbents (activated coal and desiccant) are regenerated and chemabsorbent is changed.

3. PRODUCTION OUTPUT

The capacity of halons regeneration plant is from 20 to 100 tonnes per year (with one shift work - 5 days per week).

4. TECHNICAL DATA OF THE END PRODUCT

The quality of halons after regeneration meets the necessary requirements.

5. TECHNICAL DATA OF THE BASIC RAW MATERIALS

Activated coal and solid adsorbent should have certified quality.

6. HALON LOSSES OCCURRING DURING THE REGENERATION PROCESS ARE GIVEN IN THE FIGURE ATTACHED.

7. MAJOR ATTENDING PERSONNEL

Number of persons per shift

Major workers/operators	1
Laboratory assistants	1

Note: In the present technical proposal, only major plant personnel are defined, without reference to engineering/technical workers or auxiliary personnel. These may be defined at the next designing stage in consideration of the control network on a concrete construction site.

8. MAIN ARRANGEMENT DECISION

Production units are located on the open tower platforms and inside the building (fixed), as well as in the back of a truck, or in an air or sea container (mobile).

The assembly of facilities is carried out considering the importance of most rational connections between separate process stages and convenience of attendance.

9. THE FUND OF WORKING TIME

The working regime is one (two) shift, five days per week, up to 200 days each year.

10. PRODUCTION WASTE PER ONE TONNE OF REGENERATED HALON:

1. Waste solid adsorbents - up to 5 kg.
2. Gas relief - 50 to 100 kg.

11. GUARANTEE

Productivity, end product quality, consumption of raw and auxiliary materials and forms of energy are guaranteed, provided that the plant is mounted and operated according to the project which has been performed in the Soviet Union, and is regularly supplied with raw materials and energy agents which meet necessary requirements of quality and parameters.