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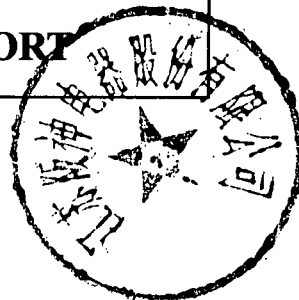
Contract No.: 02/143

Date: June 26, 2003

Purchase Order No.: 16000169

Project No.: MP/CPR/99/122-Replacement of CFC-11 and CFC-12 with  
Cyclopentane and R134a in the Production Refrigerators at Banshen Electrical  
Appliances Co., People's Republic of China

**FINAL REPORT**



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## **FINAL REPORT**

1. Work covered by UNIDO contract 02/143.
2. Work completed by Banshen Company.
3. Conclusion:

1. Work covered by UNIDO contract 02/143:

1.1 Preparation of all documents required by the local authorities for issuing licenses and certificates for the new technology including an environmental impact assessment and feasibility report of the conversion project as well. (UNIDO Terms of Reference dated 13 May 2002 item 3.1)

1.2 Preparation of construction drawings on the installation of cyclopentane storage tanks at Main, Meili and Miaoquan Plant. (UNIDO Terms of Reference dated 13 May 2002 item 3.2)

1.2.1 Construction and detailed engineering drawing of technological processes and layout of tank area;

1.2.2 Construction drawings on cyclopentane tank pit;

1.2.3 Detailed engineering drawings on static earthing and lighting protection system in the cyclopentane storage areas;

1.2.4 Drawings and documentation of fire extinguisher system;

1.3 Civil works for the preparation of underground storage areas at Main, Meili and Miaoquan factories: (UNIDO Terms of Reference dated 13 May 2002 item 3.3)

1.3.1 Site preparation, earth removal for the pits of storage areas;

1.3.2 Concrete basement and walls of the storage areas;

- 1.3.3 Concrete surface for the storage areas;
  - 1.3.4 Concrete flood gate and fence around the storage areas;
  - 1.3.5 Construction of iron gates for the tank trucks to enter the storage areas;
  - 1.3.6 Construction of waterproof roof above the underground tanks;
  - 1.3.7 Water supply, earthing and lightning protection system of the storage areas
- 1.4 Removal of buildings, structures from immediate vicinity of the cyclopentane storage areas as appropriate. (UNIDO Terms of Reference dated 13 May 2002 item 3.4)
- 1.5 Electrical work: (UNIDO Terms of Reference dated 13 May 2002 item 3.5)
- 1.5.1 Upgrade and earthing of foaming lines according to the safety requirements of cyclopentane from components supplied by OMS;
  - 1.5.2 Installation of safety indicators in escape corridors of all workshops;
- 1.6 Modification of the existing heating system from oil to water based at Meili and Miaoquan Plants as required for the use of cyclopentane. (UNIDO Terms of Reference dated 13 May 2002 item 3.6)

1.7 Application of antistatic painting for altogether approximately 400 to 500 M<sup>2</sup> at Main, Meili and Miaoquan factories to ensure safe working conditions with cyclopentane (paint no included). (UNIDO Terms of Reference dated 13 May 2002 item 3.7)

## 2. Work completed by Banshen Company:

### 2.1. Work in UNIDO Terms of Reference item 3.1

2.1.1. According to SEPA's requirement Banshen Company signed a technical consultation contract with Suzhou Zhongzi engineering consultation Co., Ltd for the feasibility research report of the conversion project and it was completed in Jan. 2001 and it was approved by Jiangsu Province government. (See Progress report I)

2.1.2. Banshen Company signed a technical consultation contract with Jiangsu Environmental Science Research Institute to complete the environmental compact assessment of the conversion project and it was completed in Aug. 2001 and has been approved by local Environmental Protection Bureau. (See Progress report I)

Other relevant documents that required by local authorities for issuing licenses and certificates for the new technology are prepared as well.

### 2.2. Work in UNIDO Terms of Reference item 3.2.

According to domestic fire extinguishing regulation, the construction drawings of three cyclopentane storage area were designed and completed by Wuxi Industrial Chemical Research & Design Institute in July 2001 as following:

- a. Construction and detailed engineering drawings of technological processes and layout of tank area;
- b. Construction drawings on cyclopentane tank pits;
- c. Detailed engineering drawings on static earthing and lighting protection system in the cyclopentane storage areas;
- d. Drawings and documentation of fire extinguisher system;

And these drawings have been approved by local fire extinguishing authorities. (See Progress report I)

### **2.3. Work in UNIDO Terms of Reference item 3.3.**

2.3.1. Site preparation, earth removal and construction of concrete basement, walls and concrete surface of the storage areas have been finished. (See Progress report I)

2.3.2. Construction of fence and waterproof roof above the underground tanks in Meili and Miaoquan plants have been finished. (See Progress report I)

2.3.3. Construction of a iron gate for the tank trucks enter the storage area

application of antistatic painting to ensure safe working conditions with cyclopentane, which have been mentioned in the Progress Report II dated October 15, 2002, because OMS did not supply the paint while TUV have accepted that anti-static painting is not necessary.

The total amount of the contract is USD 300,000, after deduct the amount for the anti-static painting, the left amount is USD 297,750.