

INFORMATION PAPER

HALON MANAGEMENT SUPPORT SERIES

**Manufacturers of Halon
Recycling, Recovery and Reclaim Equipment**

UNEP DTIE OZONACTION PROGRAMME
OZONACTION INFORMATION CLEARINGHOUSE
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Technology, Industry and Economics

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UPDATES

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INTRODUCTION

In November 1994, Decision IV/26 of the Parties to the Montreal Protocol mandated UNEP to establish the International Recycled Halon Bank Management Information Clearinghouse (IRHBMIC). This clearinghouse, which is operated by the UNEP DTIE OzonAction Programme under the Multilateral Fund, collects and disseminates information relevant to international halon bank management.

Through Decision X/7 (November 1998), the Parties to the Montreal Protocol reinforced the need for countries to develop comprehensive strategies to manage their halon stocks. Halon bank management consists of keeping track of halon quantities at each stage: initial filling, installation, "recycling", and storage. A major goal of a halon bank is to avoid demand for new (virgin) halons by re-deploying halons from decommissioned systems or non-essential applications to essential uses.

Since halon recovery, recycling and reclaim equipment is an integral part of halon management, the clearinghouse maintains and regularly updates this worldwide list of manufacturers as part of the *Halon Management Support Series*. This list is intended for National Ozone Units, halon banks, fire protection agencies, industry and other organisations involved in halon management.

We welcome new information about suppliers that should be added to this paper for future updates.

FOR MORE INFORMATION ABOUT THE PHASE OUT OF HALON UNDER THE MONTREAL PROTOCOL, HALON
MANAGEMENT AND HALON BANKING, PLEASE VISIT
WWW.HALONTRADER.ORG OR WWW.UNEPTIE.ORG/OZONACTION.HTML

HALON-1211

PRODUCT NAME
SUPPLIER
DETAILS

DEFENDER 2000/M-1, DEFENDER 2000/C-1

FRC International, Inc.
 6150 Merger Drive
 Holland, Ohio 43528
 United States
 Tel: (1) 419-867-8990
 Fax: (1) 419-867-3279
 Email: frc@norden1.com

- The M-1 recovers, reclaims and recycles halon-1211 between pressure vessels for maintenance, storage, cleaning, and other activities.
- Designed to be deployed into landbased and shipboard locations.
- Manufactured in accordance with U.S. Navy/Marine Corps Specifications.
- The C-2 is a halon-1211 recycling system based on the M-1 military version but specifically designed for the commercial user.
- Recovers halon-1211 and nitrogen gas from existing portable and wheeled fire equipment.
- UL 2006 Listed and is in accordance with National Fire Protection Association (NFPA-10) Standards.



PRODUCT NAME
SUPPLIER
DETAILS

HALON 1211 RECOVERY/RECYCLE SYSTEM 58614

Getz Manufacturing
 1525 SW Adams
 Peoria, Illinois 61602
 United States
 Tel: (1) 309-674-1723
 Fax: (1) 309-673-6088
 Email: salesinquiry@getzmfg.com
<http://www.getzmfg.com/prod02.htm>



- Transfers halon-1211 liquid and vapor
- Creates a 20" vacuum in extinguisher
- Reuses original nitrogen to re-pressurize extinguishers
- Filters particulate matter out of halon-1211
- Meets and exceeds UL Standard 2006
- Operates on compressed air pressure at 65-80 psi at a minimum of 13 cfm
- Capabilities 16.5 lbs. per minute max
- Includes training video
- Includes 250 lb. tank
- Removes moisture to below 20 parts per million
- Shipping weight 200 lbs.



MANUFACTURERS OF HALON RECYCLING, RECOVERY AND RECLAIM EQUIPMENT
HALON MANAGEMENT SUPPORT SERIES

<p>PRODUCT NAME</p> <p>SUPPLIER</p>
<p>DETAILS</p>

HALON 1211 UPGRADE FOR H-1301 RECYCLING MACHINE

Neutronics, Inc. Ntron Division
 456 Creamery Way
 Exton, Pennsylvania 19341
 United States
 Tel: (1) 610-524-8800
 Fax: (1) 610-524-8807
 Email: info@neutronicsinc.com
<http://www.neutronicsinc.com/halon1301rs.html>



- The H-1301 recycling machine is available with an upgrade/option to provide the capability to detect halon-1211.
- Used by a variety of industries such as fire protection, oil refineries, military applications, industrial plants and computer rooms.
- Capable of extracting Halon from high pressure vessels, putting it to MIL-M-12218C or ISO 7201 and pumping the purified halon into storage containers.
- Totally automated: user simply connects a vessel of contaminated halon to the unit, and the system automatically regulates input pressure for high pressure liquid, high pressure gas and low pressure gas. It automatically vents nitrogen and stops when the receiving container is full.
- A cascaded refrigeration system provides cooler temperatures as low as -100°F, to assure complete liquefaction of halon. At -60°F(-51°C), nitrogen gas is vented to atmosphere and clean halon is pumped into storage containers ready for future use.
- Nitrogen Removal: Cold Vented at -60°F(-51°C)
- Average Recovery Rate: 2-4 lbs/min (0.9-1.8 kg/min)
- Internal Capacity: 120 lbs (55 kg.)
- Maximum Input Pressure: 1000 PSIG
- Halon Recovery Efficiency: over 98%
- Dimensions: 38" W x 55" L x 66" H (965mm W x 1397mm L x 1676mm H)
- Weight: 1000 lbs (455kg)
- Acid Filter: 42 in³ (688 CM³)
- Moisture Filters: 84 in³ (1376 CM³)
- Moisture Indicator: Sight glass
- Particulate Retention: 98% of 1 micron (liquid), 98% of 0.4 micron (gas)
- Particulate Filter Indicator: Pops out when filter is full
- Halon Output Purity: 99.6 Mole % purity in liquid phase, 0.4 Mole % other halocarbons in liquid phase, 3.0 PPM (by weight) acids, 1 0.0 PPM (by weight) water, 1.5% (by volume) fixed gases in vapor phase
- Power Requirements: 205-225 VAG, single phase 60 Hz, 205-255 VAG, single phase 50 Hz, (400 VAC, 3 phase 50 Hz optional), 9.0 KW Maximum Power Load



MANUFACTURERS OF HALON RECYCLING, RECOVERY AND RECLAIM EQUIPMENT
HALON MANAGEMENT SUPPORT SERIES

PRODUCT NAME
SUPPLIER
DETAILS

RECOVERY AND CONDITIONING FOR HALON (REACH)

Kidde International
 Belvue Road, Northolt
 Middlesex UB5 5QW
 United Kingdom
 Tel: (44) 181-845-7711
 Fax: (44) 181-845-4304

Walter Kidde Aerospace, Inc.
 4200 Airport Drive, N.W
 Wilson, North Carolina 27893
 United States
 Tel: (1) 919-237-7004
 Fax: (1) 919-237-8533
 Email: hillmant@wkai-lan.mhs.compuserve.com
<http://www.walterkidde.com/product.htm>
 Not available



HALON-1301

PRODUCT NAME
SUPPLIER
DETAILS

DEFENDER 2000/C-400

FRC International, Inc.
 6150 Merger Drive
 Holland, Ohio 43528
 United States
 Tel: (1) 491-867-8990
 Fax: (1) 419-867-3279
 Email: frc@norden1.com
 Not available



PRODUCT NAME
SUPPLIER

FM 200/HALON1301 RECOVERY/RECYCLE 58940

Getz Manufacturing
 1525 SW Adams
 Peoria, Illinois 61602
 United States
 Tel: (1) 309-674-1723
 Fax: (1) 309-673-6088
 Email: salesinquiry@getzmfg.com
<http://www.getzmfg.com/prod02.htm>



MANUFACTURERS OF HALON RECYCLING, RECOVERY AND RECLAIM EQUIPMENT
HALON MANAGEMENT SUPPORT SERIES

DETAILS

- 99% transfer efficiency
- Transfers liquid, vapor, and nitrogen
- Halon-1301 liquid transfer rate: 16 lbs. per minute
- Halon-1301 vapor transfer rate: 2 lbs. per minute
- Filters particulate matter
- Indicates moisture
- Operates on compressed air pressure between 100-120 psi at a minimum of 13 cfm



PRODUCT NAME
SUPPLIER
DETAILS

MARS 2000/B-100
 FRC International, Inc.
 6150 Merger Drive
 Holland, Ohio 43528
 United States
 Tel: (1) 491-867-8990
 Fax: (1) 419-867-3279
 Email: frc@norden1.com
 Not available



PRODUCT NAME
SUPPLIER
DETAILS

MODEL ERS-130 HALON
 Global Ozone Solutions, Inc.
 One Chestnut Street
 Nashua, New Hampshire 03060
 United States
 Tel: (1) 603-880-8365
 Fax: (1) 603-889-4206
 Email: seearth@aol.com
 Not available



PRODUCT NAME
SUPPLIER

MODEL HI 301
 Neutronics, Inc. Ntron Division
 456 Creamery Way
 Exton, Pennsylvania 19341
 United States
 Tel: (1) 610-524-8800
 Fax: (1) 610-524-8807
 Email: info@neutronicsinc.com
<http://www.neutronicsinc.com/halon1301rs.html>



MANUFACTURERS OF HALON RECYCLING, RECOVERY AND RECLAIM EQUIPMENT
HALON MANAGEMENT SUPPORT SERIES

<p>DETAILS</p>

- Used by a variety of industries such as fire protection, oil refineries, military applications, industrial plants and computer rooms.
- Capable of extracting Halon from high pressure vessels, putting it to MIL-M-12218C or ISO 7201 and pumping the purified halon into storage containers.
- Totally automated: user simply connects a vessel of contaminated halon to the unit, and the system automatically regulates input pressure for high pressure liquid, high pressure gas and low pressure gas. It automatically vents nitrogen and stops when the receiving container is full.
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- Average Recovery Rate: 2-4 lbs/min (0.9-1.8 kg/min)
- Internal Capacity: 120 lbs (55 kg.)
- Maximum Input Pressure: 1000 PSIG
- Halon Recovery Efficiency: over 98%
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- Weight: 1000 lbs (455kg)
- Acid Filter: 42 in³ (688 CM³)
- Moisture Filters: 84 in³ (1376 CM³)
- Moisture Indicator: Sight glass
- Particulate Retention: 98% of 1 micron (liquid), 98% of 0.4 micron (gas)
- Particulate Filter Indicator: Pops out when filter is full
- Halon Output Purity: 99.6 Mole % purity in liquid phase, 0.4 Mole % other halocarbons in liquid phase, 3.0 PPM (by weight) acids, 1 0.0 PPM (by weight) water, 1.5% (by volume) fixed gases in vapor phase
- Power Requirements: 205-225 VAG, single phase 60 Hz, 205-255 VAG, single phase 50 Hz, (400 VAC, 3 phase 50 Hz optional), 9.0 KW Maximum Power Load



<p>PRODUCT NAME</p>
<p>SUPPLIER</p>

RECOVERY AND CONDITIONING FOR HALON (REACH)

Kidde International
 Belvue Road, Northolt
 Middlesex UB5 5QW
 United Kingdom
 Tel: (44) 181-845-7711
 Fax: (44) 181-845-4304
[http://www.walterkidde.com/product.h
 tm](http://www.walterkidde.com/product.htm)



MANUFACTURERS OF HALON RECYCLING, RECOVERY AND RECLAIM EQUIPMENT
HALON MANAGEMENT SUPPORT SERIES

DETAILS

- Applicable Agents: halon 1301, 1211, 2402 and any halocarbon with boiling temperature greater than -76°F (-60°C)
- Interfaces with aircraft or halon vessels
- Complete automatic purge capability preventing cross contamination of agents
- Process description: the halocarbon agent is fed via a standard cylinder connection, from the pressure vessel fill port. (Liquid phase flow is also possible, requiring slightly longer recovery times.) Agent is prefiltered, dried, fine filtered, and dried again. The agent is then directed through contaminant indicators to a cold vessel where non-condensing gasses are removed. The agent is then transferred to a storage cylinder.
- Recovery Efficiency: up to 98% even if nitrogen charged
- System Dimensions: 254 cm x 101 cm x 186 cm
- System Weight: 2200 lbs (998 kg)
- Max Input Pressure: 1000 psig (69 bar)
- Electrical Demand: 8KVA, 380-460 VAC; 50/60 Hertz, Three Phase
- Recovery Time: Up to 10 lbs. / min. (4.6kg/min)
- Avg. Filter/Dryer Lifetime: 8000 lbs. (3630 kg) throughput
- Reclaimed Agent Quality: Capable of meeting D5632-95 ASTM Type 11. Removes moisture, nitrogen, aqueous acids and particulate contaminants to within ASTM Type 11 Standards, when operated within design parameters and guidelines.



HALON-2402

PRODUCT NAME
SUPPLIER
DETAILS

RECOVERY AND CONDITIONING FOR HALON (REACH)

Kidde International
 Belvue Road, Northolt
 Middlesex UB5 5QW
 United Kingdom
 Tel: (44) 181-845-7711
 Fax: (44) 181-845-4304
<http://www.walterkidde.com/product.htm>

- Capable of capturing Halon 1301 with greater than 98% efficiency and then conditioning it back to D5632-95, ASTM Type 11 standards.



UNEP'S ON-LINE HALON TRADER (WWW.HALONTRADER.ORG)

The On-line Halon Trader is a new service provided by UNEP's halon clearinghouse. It is designed to support national halon banking by facilitating the exchange of halons for critical uses via the World Wide Web.

In the past, clearinghouses were "off-line" and used conventional communication methods for halon banking. Having a web-enabled online halon trading clearinghouse greatly facilitates and expedites the halon exchange transactions by bringing the halon owners and halon buyers closer and make halon bank management more effective.

The On-line Halon Trader is designed for companies that use halons in critical applications, including owners, managers and/or operators of fire protection systems, fire control services and other organisations related to fire protection. It provides a virtual marketplace where persons can match demand with supply.

Through this free service, companies that need halon for critical applications ("halon seekers") will be able to post listings of specific demand in a virtual "marketplace". Companies or halon banks that can meet this demand with recovered, reclaimed or recycled halon ("halon providers") will be able to respond or post their own listings about halons available for exchange. UNEP provides the platform for this exchange and does not in any manner become party to the transaction between those who seek halons and those who provide halons.



The On-line Halon Trader seeks to promote the responsible management of halons on both sides of halon banking transactions. As part of the terms of service agreed by anyone submitting a listing on the web site, providers of halons agree that the halons are recovered, recycled, reclaimed or banked, and they are not newly-produced ("virgin") halons being sold for the first time. Persons seeking halons who wish to access the listings agree that their organizations have endeavored to reduce, avoid, or eliminate the use of halons to the maximum extent feasible, and are seeking recovered, recycled, reclaimed or banked halons for a critical use.

For more information, visit the site at www.halontrader.org or contact:

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