



MANAGEMENT SYSTEM MANUAL

7.5.11 Ozone Depleting Substances

Originator:

Theophilus Moniz, III

Approved By:

Albert F. Suchy

1. Purpose

The purpose of this procedure is to establish guidelines for the maintenance and record keeping for ozone depleting substances.

2. Responsibility

Responsibility to maintain equipment containing ozone depleting substances shall reside with the Chief Engineer.

3. General

Revised MARPOL Annex VI, Regulation 12, covers air pollution from ships caused by emission of ozone depleting substances. This regulation applies to all ships and to fixed and floating drilling rigs. Ships of 400 gross tons and above must be surveyed and issued with an IAPP Certificate.

Any deliberate emission of ozone depleting substances is prohibited. Deliberate emissions include emissions occurring in the course of maintaining, servicing, repairing or disposing of systems or equipment, except that deliberate emissions don't include minimal releases associated with the recapture or recycling of an ozone depleting substance.

CFC (chlorofluorocarbon) refrigerants, such as R-11, R-12 and R-502 are ozone depleting substances and, as such, have been banned.

HCFC (hydrochlorofluorocarbon) refrigerants, such as R-22, R-123 and various blends are currently going through a transition period of legislation. These substances will be prohibited by 01 January 2020.

Halons, such as 1211 or 1311, have been used as fire fighting media and, as such, are allowed on existing vessels and can remain in service until replaced or required to be removed by international, national or other legislation or requirements.

The applicability of these guidelines applies to all equipment containing ozone depleting substances except that it does not apply to permanently sealed equipment where there are no refrigerant charging connections potentially removable components containing ozone depleting substances. Domestic refrigerators, domestic freezers, ice makers, water coolers and self contained air-conditioner are usually sealed systems and thus are outside the scope of complying with this guideline.

4. Maintenance

If maintenance of refrigeration equipment is carried out by ship's staff, then a refrigerant recovery unit and associated cylinder need to be provided. The special



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cylinder used for recovery should be specially marked and labeled, e.g. “R-22 – Recovered.” The markings should be clear and near the top of the cylinder.

Recovery cylinders are supplied in various colors, the color may indicate which refrigerant it contains, but it should, in every case have a yellow band or section around the cylinder neck to indicate that it contains recovered refrigerant.

To reduce the possibility of leaks occurring, periodic leak detection should be undertaken. This is separate from the leak monitoring system. The periodicity for conducting leak detection is dependent on the size of the system.

<u>Charge</u>	<u>Example of System Type</u>	<u>Periodicity</u>
< 3 kg	Bottle cooler, walk-in chambers, split A/C units	Yearly
3 ≤ 30 kg	Control room A/C, small provision chambers	Quarterly
30 < 300 kg	Cargo ship accommodation A/C, provision rooms	Monthly
300 kg & over	Cargo refrigeration plants, passenger ship A/C	Weekly

Any detected leakage should be repaired as soon as possible. If the leaking system is maintained by a third party, such as a shore-side refrigeration contractor, then the repair should be completed in the next port. The equipment or system shall be checked for leakage after the repair and then again within one month to ensure that the repair has been effective.

Standard jobs within NS5 are to be utilized to record the periodic leak detection conducted.

5. **Ozone Depleting Substance Record Book**

Regulation 12 requires that a maintenance record needs to be maintained. It is recommended that a refrigerant “log book” be kept. Since NS5 is the official record of maintenance on board our vessels, the work order (WO) or service requisition (SR) is to be included in the record of maintenance.