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July 01, 2004

RSPA - 04 - 17664 - 8

Comment on NPRM concerning HMR

Ref. RSPA-04-17664 (HM-224B / RIN 2137-AD33)

SR Technics Switzerland is currently evaluating a situation involving the inadvertent transportation of Chemical Oxygen Generators that were assembled in sealed components. It was not readily apparent to those involved in handling this material that the generators were installed in the higher assembly (passenger service units).

Accordingly, we strongly support the proposed additional marking requirement contained in revised 49 CFR section 173.168 (d).

Furthermore, we would like to recommend that you favorably consider an additional safety improvement relating to the transportation of hazardous materials.

During the evaluation of the aforementioned situation we recognized that there is a significant difference between the United States and European Community (EC) requirements for the preparation of a 'Material Safety Data Sheet' (MSDS) for Hazardous Materials.

Within the U.S. the requirements for preparation and distribution of MSDS' are set forth in 29 CFR section 1910.1200(g) [Attachment 1]. Para (g)(2)(viii) provides that '*any generally applicable precautions for safe handling and use*' is required information. In actual practice, however, this is limited mainly to the physical usage and/or storage of such material. Transportation requirements and precautions are not typically included. Therefore, an MSDS for a Chemical Oxygen Generator, based on the **US-requirements**, prepared by a US-based company, **does not** provide any specific transportation information [Attachment 2].

In contrast, within the EC the requirements for preparation and distribution of MSDS' are specified in 2001/58/EC [Attachment 3]. Paragraph 14 of the Annex requires '*Transport Information*'. Such information relates also to IATA Dangerous Goods Regulations (DGR) as well as other modal regulations (IMDG, ADR, RID). Therefore, an MSDS for a Chemical Oxygen Generator, based on the **EC-requirements**, prepared by a US-based company, **does** provide specific transport information [Attachment 4].



For the foregoing reasons, SR Technics Switzerland strongly recommends that RSPA coordinate with OSHA so that safety-critical transportation information can be prominently reflected on the MSDS.

If you desire further information or have any questions, please do not hesitate to contact us.

Kind Regards,

A handwritten signature in black ink, appearing to read "P. Müller". The signature is stylized and written in a cursive-like font.

Peter Müller

Enclosures

Extract of e-CFR Title 29 - Labor**Subtitle B - Regulations Relating to Labor**

Chapter XVII - Occupational Safety and Health Administration, Department of Labor

MSDS**§ 1910.1200 Hazard communication.**

(a) **Purpose.** (1) The purpose of this section is to ensure that the hazards of all chemicals produced or imported are evaluated, and that information concerning their hazards is transmitted to employers and employees. This transmittal of information is to be accomplished by means of comprehensive hazard communication programs, which are to include container labeling and other forms of warning, material safety data sheets and employee training.

(2) This occupational safety and health standard is intended to address comprehensively the issue of evaluating the potential hazards of chemicals, and communicating information concerning hazards and appropriate protective measures to employees, and to preempt any legal requirements of a state, or political subdivision of a state, pertaining to this subject. Evaluating the potential hazards of chemicals, and communicating information concerning hazards and appropriate protective measures to employees, may include, for example, but is not limited to, provisions for: developing and maintaining a written hazard communication program for the workplace, including lists of hazardous chemicals present; labeling of containers of chemicals in the workplace, as well as of containers of chemicals being shipped to other workplaces; preparation and distribution of material safety data sheets to employees and downstream employers; and development and implementation of employee training programs regarding hazards of chemicals and protective measures. Under section 18 of the Act, no state or political subdivision of a state may adopt or enforce, through any court or agency, any requirement relating to the issue addressed by this Federal standard, except pursuant to a Federally-approved state plan.

(b) **Scope and application.** (1) This section requires chemical manufacturers or importers to assess the hazards of chemicals which they produce or import, and all employers to provide information to their employees about the hazardous chemicals to which they are exposed, by means of a hazard communication program, labels and other forms of warning, material safety data sheets, and information and training. In addition, this section requires distributors to transmit the required information to employers. (Employers who do not produce or import chemicals need only focus on those parts of this rule that deal with establishing a workplace program and communicating information to their workers. Appendix E of this section is a general guide for such employers to help them determine their compliance obligations under the rule.)

(2) This section applies to any chemical which is known to be present in the workplace in such a manner that employees may be exposed under normal conditions of use or in a foreseeable emergency.

.....

(c) Definitions.

Article means a manufactured item other than a fluid or particle: (i) which is formed to a specific shape or design during manufacture; (ii) which has end use function(s) dependent in whole or in part upon its shape or design during end use; and (iii) which under normal conditions of use does not release more than very small quantities, e.g., minute or trace amounts of a hazardous chemical (as determined under paragraph (d) of this section), and does not pose a physical hazard or health risk to employees.

.....

Material safety data sheet (MSDS) means written or printed material concerning a hazardous chemical which is prepared in accordance with paragraph (g) of this section.

.....

(d) **Hazard determination.** (1) Chemical manufacturers and importers shall evaluate chemicals produced in their workplaces or imported by them to determine if they are hazardous. Employers are not required to evaluate chemicals unless they choose not to rely on the evaluation performed by the chemical manufacturer or importer for the chemical to satisfy this requirement.

(2) Chemical manufacturers, importers or employers evaluating chemicals shall identify and consider the available scientific evidence concerning such hazards. For health hazards, evidence which is statistically significant and which is based on at least one positive study conducted in accordance with established scientific principles is considered to be sufficient to establish a hazardous effect if the results of the study meet the definitions of health hazards in this section. Appendix A shall be consulted for the scope of health hazards covered, and Appendix B shall be consulted for the criteria to be followed with respect to the completeness of the evaluation, and the data to be reported.

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(3) The chemical manufacturer, importer or employer evaluating chemicals shall treat the following sources as establishing that the chemicals listed in them are hazardous:

(i) 29 CFR part 1910, subpart Z, Toxic and Hazardous Substances, Occupational Safety and Health Administration (OSHA); or,

(ii) *Threshold Limit Values for Chemical Substances and Physical Agents in the Work Environment*, American Conference of Governmental Industrial Hygienists (ACGIH) (latest edition). The chemical manufacturer, importer, or employer is still responsible for evaluating the hazards associated with the chemicals in these source lists in accordance with the requirements of this standard.

(4) Chemical manufacturers, importers and employers evaluating chemicals shall treat the following sources as establishing that a chemical is a carcinogen or potential carcinogen for hazard communication purposes:

(i) National Toxicology Program (NTP), *Annual Report on Carcinogens* (latest edition);

(ii) International Agency for Research on Cancer (IARC) *Monographs* (latest editions); or

(iii) 29 CFR part 1910, subpart Z, Toxic and Hazardous Substances, Occupational Safety and Health Administration.

Note:

The *Registry of Toxic Effects of Chemical Substances* published by the National Institute for Occupational Safety and Health indicates whether a chemical has been found by NTP or IARC to be a potential carcinogen.

(5) The chemical manufacturer, importer or employer shall determine the hazards of mixtures of chemicals as follows:

(i) If a mixture has been tested as a whole to determine its hazards, the results of such testing shall be used to determine whether the mixture is hazardous;

(ii) If a mixture has not been tested as a whole to determine whether the mixture is a health hazard, the mixture shall be assumed to present the same health hazards as do the components which comprise one percent (by weight or volume) or greater of the mixture, except that the mixture shall be assumed to present a carcinogenic hazard if it contains a component in concentrations of 0.1 percent or greater which is considered to be a carcinogen under paragraph (d)(4) of this section;

(iii) If a mixture has not been tested as a whole to determine whether the mixture is a physical hazard, the chemical manufacturer, importer, or employer may use whatever scientifically valid data is available to evaluate the physical hazard potential of the mixture; and,

(iv) If the chemical manufacturer, importer, or employer has evidence to indicate that a component present in the mixture in concentrations of less than one percent (or in the case of carcinogens, less than 0.1 percent) could be released in concentrations which would exceed an established OSHA permissible exposure limit or ACGIH Threshold Limit Value, or could present a health risk to employees in those concentrations, the mixture shall be assumed to present the same hazard.

(6) Chemical manufacturers, importers, or employers evaluating chemicals shall describe in writing the procedures they use to determine the hazards of the chemical they evaluate. The written procedures are to be made available, upon request, to employees, their designated representatives, the Assistant Secretary and the Director. The written description may be incorporated into the written hazard communication program required under paragraph (e) of this section.

(g) Material safety data sheets. (1) Chemical manufacturers and importers shall obtain or develop a material safety data sheet for each hazardous chemical they produce or import. Employers shall have a material safety data sheet in the workplace for each hazardous chemical which they use.

(2) Each material safety data sheet shall be in English (although the employer may maintain copies in other languages as well), and shall contain at least the following information:

(i) The identity used on the label, and, except as provided for in paragraph (i) of this section on trade secrets:

(A) If the hazardous chemical is a single substance, its chemical and common name(s);

(B) If the hazardous chemical is a mixture which has been tested as a whole to determine its hazards, the chemical and common name(s) of the ingredients which contribute to these known hazards, and the common name(s) of the mixture itself; or,

(C) If the hazardous chemical is a mixture which has not been tested as a whole:

(1) The chemical and common name(s) of all ingredients which have been determined to be health hazards, and which comprise 1% or greater of the composition, except that chemicals identified as carcinogens under paragraph (d) of this section shall be listed if the concentrations are 0.1% or greater; and,

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- (2) The chemical and common name(s) of all ingredients which have been determined to be health hazards, and which comprise less than 1% (0.1% for carcinogens) of the mixture, if there is evidence that the ingredient(s) could be released from the mixture in concentrations which would exceed an established OSHA permissible exposure limit or ACGIH Threshold Limit Value, or could present a health risk to employees; and,
- (3) The chemical and common name(s) of all ingredients which have been determined to present a physical hazard when present in the mixture;
- (ii) Physical and chemical characteristics of the hazardous chemical (such as vapor pressure, flash point);
 - (iii) The physical hazards of the hazardous chemical, including the potential for fire, explosion, and reactivity;
 - (iv) The health hazards of the hazardous chemical, including signs and symptoms of exposure, and any medical conditions which are generally recognized as being aggravated by exposure to the chemical;
 - (v) The primary route(s) of entry;
 - (vi) The OSHA permissible exposure limit, ACGIH Threshold Limit Value, and any other exposure limit used or recommended by the chemical manufacturer, importer, or employer preparing the material safety data sheet, where available;
 - (vii) Whether the hazardous chemical is listed in the National Toxicology Program (NTP) Annual Report on Carcinogens (latest edition) or has been found to be a potential carcinogen in the International Agency for Research on Cancer (IARC) Monographs (latest editions), or by OSHA;
 - (viii) Any generally applicable precautions for safe handling and use which are known to the chemical manufacturer, importer or employer preparing the material safety data sheet, including appropriate hygienic practices, protective measures during repair and maintenance of contaminated equipment, and procedures for clean-up of spills and leaks;
 - (ix) Any generally applicable control measures which are known to the chemical manufacturer, importer or employer preparing the material safety data sheet, such as appropriate engineering controls, work practices, or personal protective equipment;
 - (x) Emergency and first aid procedures;
 - (xi) The date of preparation of the material safety data sheet or the last change to it; and,
 - (xii) The name, address and telephone number of the chemical manufacturer, importer, employer or other responsible party preparing or distributing the material safety data sheet, who can provide additional information on the hazardous chemical and appropriate emergency procedures, if necessary.
- (3) If no relevant information is found for any given category on the material safety data sheet, the chemical manufacturer, importer or employer preparing the material safety data sheet shall mark it to indicate that no applicable information was found.
- (4) Where complex mixtures have similar hazards and contents (i.e. the chemical ingredients are essentially the same, but the specific composition varies from mixture to mixture), the chemical manufacturer, importer or employer may prepare one material safety data sheet to apply to all of these similar mixtures.
- (5) The chemical manufacturer, importer or employer preparing the material safety data sheet shall ensure that the information recorded accurately reflects the scientific evidence used in making the hazard determination. If the chemical manufacturer, importer or employer preparing the material safety data sheet becomes newly aware of any significant information regarding the hazards of a chemical, or ways to protect against the hazards, this new information shall be added to the material safety data sheet within three months. If the chemical is not currently being produced or imported the chemical manufacturer or importer shall add the information to the material safety data sheet before the chemical is introduced into the workplace again.
- (6)(i) Chemical manufacturers or importers shall ensure that distributors and employers are provided an appropriate material safety data sheet with their initial shipment, and with the first shipment after a material safety data sheet is updated;
- (ii) The chemical manufacturer or importer shall either provide material safety data sheets with the shipped containers or send them to the distributor or employer prior to or at the time of the shipment;
 - (iii) If the material safety data sheet is not provided with a shipment that has been labeled as a hazardous chemical, the distributor or employer shall obtain one from the chemical manufacturer or importer as soon as possible; and,
 - (iv) The chemical manufacturer or importer shall also provide distributors or employers with a material safety data sheet upon request.
- (7)(i) Distributors shall ensure that material safety data sheets, and updated information, are provided to other distributors and employers with their initial shipment and with the first shipment after a material safety data sheet is updated;
- (ii) The distributor shall either provide material safety data sheets with the shipped containers, or send them to the other distributor or employer prior to or at the time of the shipment;

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(iii) Retail distributors selling hazardous chemicals to employers having a commercial account shall provide a material safety data sheet to such employers upon request, and shall post a sign or otherwise inform them that a material safety data sheet is available;

(iv) Wholesale distributors selling hazardous chemicals to employers over-the-counter may also provide material safety data sheets upon the request of the employer at the time of the over-the-counter purchase, and shall post a sign or otherwise inform such employers that a material safety data sheet is available;

(v) If an employer without a commercial account purchases a hazardous chemical from a retail distributor not required to have material safety data sheets on file (*i.e.*, the retail distributor does not have commercial accounts and does not use the materials), the retail distributor shall provide the employer, upon request, with the name, address, and telephone number of the chemical manufacturer, importer, or distributor from which a material safety data sheet can be obtained;

(vi) Wholesale distributors shall also provide material safety data sheets to employers or other distributors upon request; and,

(vii) Chemical manufacturers, importers, and distributors need not provide material safety data sheets to retail distributors that have informed them that the retail distributor does not sell the product to commercial accounts or open the sealed container to use it in their own workplaces.

(8) The employer shall maintain in the workplace copies of the required material safety data sheets for each hazardous chemical, and shall ensure that they are readily accessible during each work shift to employees when they are in their work area(s). (Electronic access, microfiche, and other alternatives to maintaining paper copies of the material safety data sheets are permitted as long as no barriers to immediate employee access in each workplace are created by such options.)

(9) Where employees must travel between workplaces during a workshift, *i.e.*, their work is carried out at more than one geographical location, the material safety data sheets may be kept at the primary workplace facility. In this situation, the employer shall ensure that employees can immediately obtain the required information in an emergency.

(10) Material safety data sheets may be kept in any form, including operating procedures, and may be designed to cover groups of hazardous chemicals in a work area where it may be more appropriate to address the hazards of a process rather than individual hazardous chemicals. However, the employer shall ensure that in all cases the required information is provided for each hazardous chemical, and is readily accessible during each work shift to employees when they are in their work area(s).

(11) Material safety data sheets shall also be made readily available, upon request, to designated representatives and to the Assistant Secretary, in accordance with the requirements of 29 CFR 1910.20(e). The Director shall also be given access to material safety data sheets in the same manner.



MATERIAL SAFETY DATA SHEET

Oxygen Generator - Chemical

SECTION I - IDENTIFICATION

Issue Date: October, 2000

Manufacturer's Name: B/E Aerospace, Inc.

Address: 10800 Pflumm Road, Lenexa, Kansas 66215

Emergency Phone No: 913-338-9800 (During Normal Business Hours)
24 Hour Contact:
From within the U.S. - 1-800-424-9300
From outside the U.S. - 1-703-527-3887

Chemical Name and Synonyms: Sodium Chlorate

Trade Name and Synonyms: Sodium Chlorate; Candles

Chemical Family: Oxidizer

Formula: NaClO₃

SECTION II - HAZARDOUS INGREDIENTS

<u>Material</u>	<u>CAS No.</u>	<u>OSHA PEL</u>
Sodium Chlorate	7775-09-9	Not Listed
Barium Peroxide	1304-29-6	Not Listed
Iron Powder	7439-89-6	Not Listed
Glass Powder	Not Listed	Not Listed
Tin Powder	7440-31-5	2mg/m ³
Ferric Oxide	1309-37-1	10 mg/m ³
Cobalt Oxide	1307-96-6	Not Listed
Potassium Perchlorate	7778-74-7	Not Listed

SECTION III - PHYSICAL DATA

Boiling Point: Solid (Decomposes)

Vapor Pressure: Solid

Vapor Density (Air = 1.0): Solid

Solubility in Water: 80 at 0° C; 206 at 100° C per 100 parts H₂O

Percent Volatile by Volume: Solid

Evaporation Rate: Solid

Appearance and Odor: Gray or white, solid; very slightly hygroscopic

SECTION IV - FIRE AND EXPLOSION HAZARD DATA

Flash Point:	Does not burn - strong oxidizer
Flammable Limit:	Does not burn - contact with organics and combustible materials may cause fire.
Extinguishing Media:	Flood with water. Never use blankets or powder or CO2 type extinguishers.
Special Fire Fighting Procedures:	If clothing is ignited, douse with water.
Unusual Fire and Explosion Hazards:	Do not smoke in area. Liberated oxygen may cause an explosion.

SECTION V - HEALTH HAZARD DATA

ACGIH Time Weighted Average	
Exposure Limit (TWA):	Not Listed
ACGIH Short Term	
Exposure Limit (STEL):	Not Listed
Effects of Overexposure:	Respiratory Irritation. Do not take internally.
Emergency and First Aid Procedures:	Dust exposure - Move to fresh air. Skin or eye exposure - Flush with large quantities of water. Ingestion - If conscious, drink water or milk. DO NOT INDUCE VOMITING. During use, generator may reach 450-500° F and cause 1st and 2nd degree burns. Obtain prompt medical attention.
Carcinogenicity	Not listed in NTP or IARC; not regulated as a carcinogen by OSHA.

SECTION VI - REACTIVITY DATA

Stability:	Stable when stored properly.
Conditions to Avoid:	Do not expose to heat or flame. Decomposes above 265° C
Materials to Avoid:	Acids (may cause explosion), wood, combustible materials, heat, flames.
Hazardous Decomposition Products:	Oxygen
Hazardous Polymerization:	None

SECTION VII - SPILL OR LEAK PROCEDURE

Steps to be taken in case material is released or spilled:	Remove ignition sources. Avoid handling or transporting chlorates on asphalt or plastic tile or on wood floors. Avoid conditions where wood may become contaminated. Prevent from contacting acids, organic materials, sulfur and sulfides, phosphorus, powdered metals, ammonium compounds and combustible materials. Sweep up dry spillage immediately into metal containers or wash into an industrial sewer.
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Waste Disposal Method:

Unused chemical oxygen generators contain oxidizers, and when activated, they produce gaseous oxygen and their surface becomes very hot. This includes chemical oxygen generators which are at the end of their service life. Oxidizers, including gaseous oxygen, can react vigorously with other materials to lower ignition temperature, promote combustion, and accelerate fires. Unused chemical oxygen generators must be packaged, labeled, transported, and disposed in accordance with applicable national, state, and local regulations.

B/E Aerospace strongly recommends that operators discharge chemical generators which have reached the end of useful life. To do this, follow these steps:

Remove dust caps from generator tubing connections, if they are present.

- Place generator on a noncombustible surface, away from oil, grease, paper, or other combustible materials.
- Pull actuation pin to start the flow of oxygen.
- Do not touch the generator with unprotected hands, as it is hot enough to burn the skin. Allow the generator to cool before handling, or use protective gloves.

Used oxygen generators may contain materials which are subject to hazardous waste disposal regulations. Dispose of used chemical oxygen generators in accordance with applicable national, state, and local regulations.

SECTION VIII - SPECIAL PROTECTION INFORMATION

Eye Protection:	Splash-proof safety goggles
Protective Gloves:	Neoprene. Never wear leather
Local Exhaust:	Recommended
Ventilation:	Store & use only in a well-ventilated area.
Respiratory Protection:	See Section VII
Other Protective Equipment:	Rubber shoes or boots. Never wear shoelaces. Wash clothes daily. Use head covering.

SECTION IX - SPECIAL PRECAUTIONS

Precautions to be taken in handling and storage:	Chlorate handling areas must be kept clean.
Other Precautions:	Avoid contact with organic materials, heat sources, acids, oxidizable materials and heat.

The information set forth in this Material Safety Data Sheet is furnished free of charge for use by qualified employees of the user. All such information is furnished for the independent investigation and verification thereof by the user. NO GUARANTEE OR WARRANTY (INCLUDING MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE) OF ANY KIND IS MADE WITH RESPECT TO SUCH INFORMATION OR THE ACCURACY OR RELIABILITY THEREOF, OR WITH RESPECT TO THE PRODUCT COVERED BY SUCH INFORMATION. B/E Aerospace, Inc. assumes no liability for any damages (whether incidental, consequential, special or otherwise) whatsoever arising out of or in connection with the use of such information or product, and all such use shall be at the user's sole risk.

COMMISSION DIRECTIVE 2001/58/EC

of 27 July 2001

amending for the second time Directive 91/155/EEC defining and laying down the detailed arrangements for the system of specific information relating to dangerous preparations in implementation of Article 14 of European Parliament and Council Directive 1999/45/EC and relating to dangerous substances in implementation of Article 27 of Council Directive 67/548/EEC (safety data sheets)

(Text with EEA relevance)

THE COMMISSION OF THE EUROPEAN COMMUNITIES,

Having regard to the Treaty establishing the European Community,

Having regard to Directive 1999/45/EC of the European Parliament and of the Council of 31 May 1999 concerning the approximation of the laws, regulations and administrative provisions of the Member States relating to the classification, packaging and labelling of dangerous preparations ⁽¹⁾, and in particular Article 14 thereof,

Having regard to Council Directive 67/548/EEC of 27 June 1967 on the approximation of laws, regulations and administrative provisions relating to the classification, packaging and labelling of dangerous substances ⁽²⁾, as last amended by Commission Directive 2000/33/EC ⁽³⁾, and in particular Article 27 thereof,

Whereas:

- (1) Article 14 of Directive 1999/45/EC provides that the person responsible for placing on the market certain specified preparations must provide a safety data sheet.
- (2) Article 27 of Directive 67/548/EEC provides that the person responsible for placing dangerous substances on the market must also provide a safety data sheet.
- (3) Safety data sheet information is principally intended for use by professional users and must enable them to take the necessary measures as regards the protection of health, safety and the environment at the place of work.
- (4) Safety data sheets for dangerous substances and certain preparations, and their supply must comply with the provisions of Commission Directive 91/155/EEC ⁽⁴⁾, as amended by Directive 93/112/EC ⁽⁵⁾.
- (5) Article 14(2.1)(b) of Directive 1999/45/EC introduces a new requirement for persons responsible for placing preparations on the market to provide on the request of professional users a safety data sheet containing proportionate information for preparations not classified as dangerous within the meaning of Articles 5, 6 and 7 of Directive 1999/45/EC, but which contain in an indi-

vidual concentration of $\geq 1\%$ by weight for non-gaseous preparations and $\geq 0,2\%$ by volume for gaseous preparations at least one substance posing health or environmental hazards, or one substance for which there are Community workplace exposure limits.

- (6) Directive 1999/45/EC also introduces a requirement for preparations to be classified and labelled for their effects on the environment.
- (7) It is therefore necessary to amend Directive 91/155/EEC accordingly, as specified in Article 14(2.3) of Directive 1999/45/EC, before 30 July 2002.
- (8) Article 4 of Council Directive 98/24/EC of 7 April 1998 on the protection of the health and safety of workers from the risk related to chemical agents at work (fourteenth individual Directive within the meaning of Article 16(1) of Directive 89/391/EEC ⁽⁶⁾) requires employers to determine whether any hazardous chemical agents are present at the workplace, and to assess any risk to the health and safety of workers arising from the presence of those chemical agents, taking into consideration the information provided by the supplier via safety data sheets; it is therefore opportune to amend the Annex to Directive 91/155/EEC accordingly.
- (9) It is known from recent enforcement activities and studies in the Member States that many safety data sheets are of poor quality and do not provide adequate information for the user; one way of improving the quality of safety data sheets is to improve the guidance given to compilers of safety data sheets set out in the Annex to Directive 91/155/EEC; it is therefore opportune to amend the Annex to Directive 91/155/EEC accordingly; the Commission and the Member States will consider other means by which the quality of safety data sheets can be improved further in future.
- (10) The measures provided for in this Directive are in accordance with the opinion of the Committee for the adaptation to technical progress of the Directives on the removal of technical barriers to trade in dangerous substances and preparations established under Article 20 of Directive 1999/45/EC.

⁽¹⁾ OJ L 200, 30.7.1999, p. 1.⁽²⁾ OJ L 196, 16.8.1967, p. 1.⁽³⁾ OJ L 136, 8.6.2000, p. 90.⁽⁴⁾ OJ L 76, 22.3.1991, p. 35.⁽⁵⁾ OJ L 314, 16.12.1993, p. 38.⁽⁶⁾ OJ L 131, 5.5.1998, p. 11.

HAS ADOPTED THIS DIRECTIVE:

Article 1

Directive 91/155/EEC is amended as follows:

1. Article 1(1) is replaced by the following:

1. (a) The person who is responsible for placing a chemical substance or preparation on the market, whether the manufacturer, importer or distributor, shall supply the recipient, who is a professional user of the substance or preparation, with a safety data sheet containing the information set out in Article 3 and the Annex to this Directive, if the substance or preparation is classified as dangerous according to Directive 67/548/EEC or European Parliament and Council Directive 1999/45/EC (*).
- (b) Any person who is responsible for placing a preparation on the market, whether the manufacturer, importer or distributor, shall supply, on request of a professional user, a safety data sheet providing proportionate information as set out in Article 3 and the Annex to this Directive, if the preparation is not classified as dangerous according to Articles 5, 6 and 7 of Directive 1999/45/EC, but the preparation contains in an individual concentration of $\geq 1\%$ by weight for non-gaseous preparations and $\geq 0,2\%$ by volume for gaseous preparations at least one substance posing health or environmental hazards, or one substance for which there are Community workplace exposure limits.

(* OJ L 200, 30.7.1999, p. 1.

2. The Annex referred to in Article 3 is replaced by the Annex to this Directive.

Article 2

1. Member States shall bring into force the laws, regulations and administrative provisions necessary to comply with this Directive by 30 July 2002 at the latest. They shall forthwith inform the Commission thereof.

2. Member States shall apply the laws, regulations and administrative provisions referred to in paragraph 1:

- (a) to preparations not within the scope of Council Directive 91/414/EEC (1) on the placing of plant protection products on the market, or Council Directive 98/8/EC (2) on the placing of biocidal products on the market as from 30 July 2002;
- (b) and to preparations within the scope of Directive 91/414/EEC or Directive 98/8/EC as from 30 July 2004.

3. When Member States adopt those provisions, they shall contain a reference to this Directive or be accompanied by such a reference on the occasion of their official publication. Member States shall determine how such reference is to be made.

Article 3

This Directive shall enter into force on the 20th day following its publication in the *Official Journal of the European Communities*.

Article 4

This Directive is addressed to the Member States.

Done at Brussels, 27 July 2001.

For the Commission

Erkki LIKANEN

Member of the Commission

(1) OJ L 230, 19.8.1991, p. 1.

(2) OJ L 123, 24.4.1998, p. 1.

ANNEX

ANNEX

GUIDE TO THE COMPILATION OF SAFETY DATA SHEETS

The purpose of this Annex is to ensure consistency and accuracy in the content of each of the mandatory headings listed in Article 3, so that the resulting safety data sheets will enable professional users to take the necessary measures relating to protection of health and safety at the workplace, and protection of the environment.

The information provided by safety data sheets should meet the requirements set out in Council Directive 98/24/EC⁽¹⁾ on the protection of the health and safety of workers from the risks related to chemical agents at work. In particular, the safety data sheet should enable the employer to determine whether any hazardous chemical agents are present in the workplace, and to assess any risk to the health and safety of workers arising from their use.

The information must be written in a clear and concise manner. The safety data sheet should be prepared by a competent person who should take into account the specific needs of the user audience, as far as it is known. Persons placing substances and preparations on the market should ensure that competent persons have received appropriate training, including refresher training.

For preparations not classified as dangerous, but for which a safety data sheet is required according to Article 14(2.1)(b) of Directive 1999/45/EC, proportionate information should be provided under each heading.

Additional information may be necessary in some cases in view of the wide range of properties of the substances and preparations. If in other cases it emerges that information on certain properties is of no significance or that it is technically impossible to provide, the reasons for this must be clearly stated under each heading. Information must be provided for each hazardous property. If it is stated that a particular hazard does not apply, clearly differentiate between cases where no information is available to the classifier, and cases where negative test results are available.

Give the date of issue of the safety data sheet on the first page.

When a safety data sheet has been revised, the changes should be brought to the attention of the recipient.

Note

Safety data sheets are also required for certain special substances and preparations (e.g. metals in massive form, alloys, compressed gases etc.) listed in chapters 8 and 9 of Annex VI to Directive 67/548/EEC, for which there are labelling derogations.

1. IDENTIFICATION OF THE SUBSTANCE/PREPARATION AND OF THE COMPANY/UNDERTAKING

1.1. Identification of the substance or preparation

The term used for identification must be identical to that provided on the label as set out in Annex VI to Directive 67/548/EEC.

Other means of identification available may also be indicated.

1.2. Use of the substance/preparation

Indicate the intended or recommended uses of the substance or preparation as far as they are known. Where there are many possible uses, only the most important or common uses need be listed. This should include a brief description of what it actually does, e.g. flame retardant, anti-oxidant, etc.

1.3. Company/undertaking identification

Identify the person responsible for placing the substance or preparation on the market within the Community, whether it be the manufacturer, importer or distributor. Give the full address and telephone number of this person.

In addition, where this person is not located in the Member State where the substance or preparation is placed on the market, give a full address and telephone number for the person responsible in that Member State, if possible.

⁽¹⁾ OJ L 131, 5.5.1998, p. 11.

1.4. Emergency telephone

In addition to the abovementioned information, supply the emergency telephone number of the company and/or relevant official advisory body (this may be the body responsible for receiving information relating to health, which is referred to in Article 17 of Directive 1999/45/EC).

2. COMPOSITION/INFORMATION ON INGREDIENTS

The information given should enable the recipient to identify readily the hazards of the components of the preparation. The hazards of the preparation itself should be given under heading 3.

2.1. It is not necessary to give the full composition (nature of the ingredients and their concentration), although a general description of the components and their concentrations can be helpful.

2.2. For a preparation classified as dangerous according to Directive 1999/45/EC, the following substances shall be indicated, together with their concentration or concentration range:

(i) substances presenting a health or environmental hazard within the meaning of Directive 67/548/EEC, if they are present in concentrations equal to or greater than those laid down in the table set out in Article 3(3) of Directive 1999/45/EC (unless lower limits are given in Annex I to Directive 67/548/EEC or in Annexes II, III or V to Directive 1999/45/EC);

(ii) and substances for which there are Community workplace exposure limits, which are not already included under (i).

2.3. For a preparation not classified as dangerous according to Directive 1999/45/EC, the following substances shall be indicated, together with their concentration or concentration range, if they are present in an individual concentration of $\geq 1\%$ by weight for non-gaseous preparations and $\geq 0.2\%$ by volume for gaseous preparations:

— substances presenting a health or environmental hazard within the meaning of Directive 67/548/EEC⁽¹⁾;

— and substances for which there are Community workplace exposure limits.

2.4. The classification (deriving either from Articles 4 and 6 or from Annex I to Directive 67/548/EEC) of the above substances shall be given, including the symbol letters and R phrases which are assigned in accordance with their physicochemical, health and environmental hazards. The R phrases do not need to be written out in full here; reference should be made to heading 16, where the full text of each relevant R phrase shall be listed.

2.5. The name and the Eines or Eincs number of the above substances should be given in accordance with Directive 67/548/EEC. The CAS number and IUPAC name (if available) may also be helpful. For substances listed by a generic name, according to Article 15 of Directive 1999/45/EC or the footnote to point 2.3 of this Annex, a precise chemical identifier is not necessary.

2.6. If, in accordance with the provisions of Article 15 of Directive 1999/45/EC or the footnote to point 2.3 of this Annex, the identity of certain substances is to be kept confidential, their chemical nature shall be described in order to ensure safe handling. The name used must be the same as that which derives from the above procedures.

3. HAZARDS IDENTIFICATION

Give here the classification of the substance or preparation which arises from application of the classification rules in Directives 67/548/EEC or 1999/45/EC. Indicate clearly and briefly the hazards the substance or preparation presents to man and the environment.

Distinguish clearly between preparations which are classified as dangerous and preparations which are not classified as dangerous according to Directive 1999/45/EC.

Describe the most important adverse physicochemical, human health and environmental effects and symptoms relating to the uses and possible misuses of the substance or preparation that can reasonably be foreseen.

It may be necessary to mention other hazards, such as dustiness, suffocation, freezing or environmental effects such as hazards to soil-dwelling organisms, etc., which do not result in classification but which may contribute to the overall hazards of the material.

The information shown on the label should be given under heading 15.

⁽¹⁾ Where the person responsible for placing the preparation on the market can demonstrate that the disclosure in the safety data sheet of the chemical identity of a substance which is exclusively classified as:
 — irritant with the exception of those assigned R41 or irritant in combination with one or more of the properties mentioned in point 2.3.4 of Article 10 of Directive 1999/45/EC,
 — or harmful in combination with one or more of the properties mentioned in point 2.3.4 of Article 10 of Directive 1999/45/EC presenting acute lethal effects alone,
 will put at risk the confidential nature of his intellectual property, he may, in accordance with the provisions of Part B of Annex VI to Directive 1999/45/EC, refer to that substance either by means of a name that identifies the most important functional chemical groups, or by means of an alternative name.

4. FIRST AID MEASURES

Describe the first-aid measures.

Specify first whether immediate medical attention is required.

The information on first aid must be brief and easy to understand by the victim, bystanders and first-aiders. The symptoms and effects should be briefly summarised. The instructions should indicate what is to be done on the spot in the case of an accident and whether delayed effects can be expected after exposure.

Subdivide the information according to the different routes of exposure, i.e. inhalation, skin and eye contact and ingestion, under different subheadings.

Indicate whether professional assistance by a doctor is needed or advisable.

For some substances or preparations it may be important to emphasise that special means to provide specific and immediate treatment must be available at the workplace.

5. FIRE-FIGHTING MEASURES

Refer to requirements for fighting a fire caused by the substance or preparation, or arising in its vicinity by indicating:

- suitable extinguishing media,
- extinguishing media which must not be used for safety reasons.
- special exposure hazards arising from the substance or preparation itself, combustion products, resulting gases,
- special protective equipment for fire-fighters.

6. ACCIDENTAL RELEASE MEASURES

Depending on the substance or preparation involved, information may be needed on:

- *personal precautions such as:*
removal of ignition sources, provision for sufficient ventilation/respiratory protection, control of dust, prevention of skin and eye contact.
- *environmental precautions such as:*
keeping away from drains, surface- and ground-water and soil, possible need to alert the neighbourhood.
- *methods for cleaning up such as:*
use of absorbent material (e.g. sand, diatomaceous earth, acid binder, universal binder, sawdust, etc.), reduction of gases/fumes with water, dilution.

Also consider the need for indications such as: "never use, neutralise with ...".

Note

If appropriate refer to headings 8 and 13.

7. HANDLING AND STORAGE

Note

Information in this section should relate to the protection of health, safety and the environment. It should assist the employer in devising suitable working procedures and organisational measures according to Article 5 of Directive 98/24/EC.

7.1. Handling

Specify precautions for safe handling including advice on technical measures such as: containment, local and general ventilation, measures to prevent aerosol and dust generation and fire, measures required to protect the environment (e.g. use of filters or scrubbers on exhaust ventilation, use in a bunded area, measures for collection and disposal of spillages, etc.) and any specific requirements or rules relating to the substance or preparation (e.g. procedures or equipment which are prohibited or recommended) and if possible give a brief description.

7.2. Storage

Specify the conditions for safe storage such as: specific design for storage rooms or vessels (including retention walls and ventilation), incompatible materials, conditions of storage (temperature and humidity limit/range, light, inert gas, etc.) special electrical equipment and prevention of static electricity.

Give advice if relevant on quantity limits under storage conditions. In particular indicate any special requirements such as the type of material used in the packaging/containers of the substance or preparation.

7.3. Specific use(s)

For end products designed for specific use(s), recommendations should refer to the intended use(s) and be detailed and operational. If possible, reference should be made to industry — or sector — specific approved guidance.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION**8.1. Exposure limit values**

Specify currently applicable specific control parameters including occupational exposure limit values and/or biological limit values. Values should be given for the Member State where the substance or preparation is placed on the market. Give information on currently recommended monitoring procedures.

For preparations, it is useful to provide values for those constituent substances which are required to be listed in the safety data sheet according to heading 2.

8.2. Exposure controls

For the purposes of this document exposure control means the full range of specific protection and prevention measures to be taken during use in order to minimise worker and environmental exposure.

8.2.1. Occupational exposure controls

This information will be taken into account by the employer in carrying out an assessment of risk to the health and safety of workers for the substance or preparation under Article 4 of Directive 98/24/EC, which requires the design of appropriate work processes and engineering controls, the use of adequate equipment and materials, the application of collective protection measures at source, and finally the use of individual protection measures, such as personal protection equipment. Therefore provide suitable and adequate information on these measures to enable a proper risk assessment to be carried out under Article 4 of Directive 98/24/EC. This information should complement that already given under heading 7.1.

Where personal protection is needed, specify in detail which equipment will provide adequate and suitable protection. Take into account Council Directive 89/686/EEC⁽¹⁾ and make reference to the appropriate CEN standards:

8.2.1.1. Respiratory protection

For dangerous gases, vapours or dust, specify the type of protective equipment to be used, such as self contained breathing apparatus, adequate masks and filters.

8.2.1.2. Hand protection

Specify clearly the type of gloves to be worn when handling the substance or preparation, including:

- the type of material,
- the breakthrough time of the glove material, with regard to the amount and duration of dermal exposure.

If necessary indicate any additional hand protection measures.

⁽¹⁾ OJ L 399, 30.12.1989, p. 18.

8.2.1.3. Eye protection

Specify the type of eye protection equipment required such as: safety glasses, safety goggles, face shield.

8.2.1.4. Skin protection

If it is necessary to protect a part of the body other than the hands, specify the type and quality of protection equipment required, such as: apron, boots and full protective suit. If necessary, indicate any additional skin protection measures and specific hygiene measures.

8.2.2. Environmental exposure controls

Specify the information required by the employer to fulfil his commitments under Community environmental protection legislation.

9. PHYSICAL AND CHEMICAL PROPERTIES

To enable proper control measures to be taken, provide all relevant information on the substance or preparation, particularly the information listed under heading 9.2.

9.1. General information**Appearance**

Indicate the physical state (solid, liquid, gas) and the colour of the substance or preparation as supplied.

Odour

If odour is perceptible, give a brief description of it.

9.2. Important health, safety and environmental information**pH**

Indicate the pH of the substance or preparation as supplied or of an aqueous solution; in the latter case, indicate the concentration.

Boiling point/boiling range:**Flash point:****Flammability (solid, gas):****Explosive properties:****Oxidising properties:****Vapour pressure:****Relative density:****Solubility:**

— water solubility:

— fat solubility (solvent - oil to be specified):

Partition coefficient: n-octanol/water:**Viscosity:****Vapour density:****Evaporation rate:****9.3. Other information**

Indicate other important safety parameters, such as, miscibility, conductivity, melting point/melting range, gas group (useful for European Parliament and Council Directive 94/9/EC⁽¹⁾), auto-ignition temperature etc.

⁽¹⁾ OJ L 100, 19.4.1994, p. 1.

Note 1

The above properties should be determined in accordance with the specifications of Part A of Annex V to Directive 67/548/EEC or any other comparable method.

Note 2

For preparations, information should normally be given on the properties of the preparation itself. However, if it is stated that a particular hazard does not apply, clearly differentiate between cases where no information is available to the classifier, and cases where negative test results are available. If it is considered necessary to give information about the properties of individual components, please indicate clearly what the data refers to.

10. STABILITY AND REACTIVITY

State the stability of the substance or preparation and the possibility of hazardous reactions occurring under certain conditions of use and also if released into the environment.

10.1. Conditions to avoid

List those conditions such as temperature, pressure, light, shock, etc., which may cause a dangerous reaction and if possible give a brief description.

10.2. Materials to avoid

List materials such as water, air, acids, bases, oxidising agents or any other specific substance which may cause a dangerous reaction and if possible give a brief description.

10.3. Hazardous decomposition products

List hazardous materials produced in dangerous amounts upon decomposition.

Note

Address specifically:

- the need for and the presence of stabilisers,
- the possibility of a hazardous exothermic reaction,
- safety significance, if any, of a change in physical appearance of the substance or preparation,
- hazardous decomposition products, if any, formed upon contact with water,
- possibility of degradation to unstable products.

11. TOXICOLOGICAL INFORMATION

This section deals with the need for a concise but complete and comprehensible description of the various toxicological (health) effects which can arise if the user comes into contact with the substance or preparation.

Include dangerous-to-health effects from exposure to the substance or preparation, based on both experiences and conclusions from scientific experiments. Include information on the different routes of exposure (inhalation, ingestion, skin and eye contact), and describe the symptoms related to the physical, chemical and toxicological characteristics.

Include known delayed and immediate effects and also chronic effects from short- and long-term exposure: for example sensitisation, narcosis, carcinogenicity, mutagenicity and reproductive toxicity (developmental toxicity and fertility).

Taking account of the information already provided under heading 2, composition/information on ingredients, it may be necessary to make reference to specific health effects of certain components in preparations.

12. ECOLOGICAL INFORMATION

Describe the possible effects, behaviour and environmental fate of the substance or preparation in air, water and/or soil. Where available, give relevant test data (e.g. LC50 fish \leq 1 mg/l).

Describe the most important characteristics likely to have an effect on the environment owing to the nature of the substance or preparation and likely methods of use. Information of the same kind shall be supplied for dangerous products arising from the degradation of substances and preparations. This may include the following:

12.1. Ecotoxicity

This should include relevant available data on aquatic toxicity, both acute and chronic for fish, daphnia, algae and other aquatic plant. In addition, toxicity data on soil micro- and macro-organisms and other environmentally relevant organisms, such as birds, bees and plants, should be included when available. Where the substance or preparation has inhibitory effects on the activity of micro-organisms, the possible impact on sewage treatment plants should be mentioned.

12.2. Mobility

The potential of the substance or the appropriate constituents of a preparation ⁽¹⁾, if released to the environment, to transport to groundwater or far from the site of release.

Relevant data might include:

- known or predicted distribution to environmental compartments,
- surface tension,
- absorption/desorption.

For other physicochemical properties see heading 9.

12.3. Persistence and degradability

The potential of the substance or the appropriate constituents of a preparation ⁽¹⁾ to degrade in relevant environmental media, either through biodegradation or other processes such as oxidation or hydrolysis. Degradation half lives should be quoted where available. The potential of the substance or appropriate constituents of a preparation ⁽¹⁾ to degrade in sewage treatment plants should also be mentioned.

12.4. Bioaccumulative potential

The potential of the substance or the appropriate constituents of a preparation ⁽¹⁾ to accumulate in biota and pass through the food chain, with reference to the K_{ow} and BCF, if available.

12.5. Other adverse effects

If available, include information on any other adverse effects on the environment, e.g. ozone depletion potential, photochemical ozone creation potential and/or global warming potential.

Remarks

Ensure that information relevant to the environment is provided under other headings of the safety data sheet, especially advice for controlled release, accidental release measures, transport and disposal considerations under headings 6, 7, 13, 14 and 15.

⁽¹⁾ This information cannot be given for the preparation because it is substance specific. It should therefore be given, where available and appropriate, for each constituent substance in the preparation which is required to be listed in the safety data sheet according to the rules under heading 2 of this Annex.

13. DISPOSAL CONSIDERATIONS

If the disposal of the substance or preparation (surplus or waste resulting from the foreseeable use) presents a danger, a description of these residues and information on their safe handling shall be given.

Specify the appropriate methods of disposal of both the substance or preparation and any contaminated packaging (incineration, recycling, landfilling, etc.)

Note

Refer to any relevant Community provisions relating to waste. In their absence, it is useful to remind the user that national or regional provisions may be in force.

14. TRANSPORT INFORMATION

Indicate any special precautions which a user needs to be aware of or needs to comply with in connection with transport or conveyance either within or outside his premises.

Where relevant, provide information on the transport classification for each of the modal regulations: IMDG (sea), ADR (road, Council Directive 94/55/EC⁽¹⁾), RID (rail, Council Directive 96/49/EC⁽²⁾), ICAO/IATA (air). This might include *inter alia*:

- UN number,
- class,
- proper shipping name,
- packing group,
- marine pollutant,
- other applicable information.

15. REGULATORY INFORMATION

Give the health, safety and environmental information shown on the label according to Directives 67/548/EEC and 1999/45/EC.

If the substance or preparation covered by this safety data sheet is the subject of specific provisions in relation to protection of man or the environment at Community level (e.g. restrictions on marketing and use set out in Council Directive 76/769/EEC⁽³⁾) these provisions should, as far as is possible, be stated.

Also mention, where possible, the national laws which implement these provisions and any other national measures that may be relevant.

16. OTHER INFORMATION

Indicate any other information which the supplier assesses as being of importance for the health and safety of the user and for the protection of the environment, for example:

- list of relevant R phrases. Write out the full text of any R phrases referred to under headings 2 and 3 of the safety data sheet,
- training advice,
- recommended restrictions on use (i.e. non-statutory recommendations by supplier),
- further information (written references and/or technical contact point),
- sources of key data used to compile the data sheet,
- for a revised safety data sheet, indicate clearly the information which has been added, deleted or revised (unless this has been indicated elsewhere).

⁽¹⁾ OJ L 319, 12.12.1994, p. 7.
⁽²⁾ OJ L 235, 17.9.1996, p. 25.
⁽³⁾ OJ L 262, 27.9.1976, p. 201.

MATERIAL SAFETY DATA SHEET

SECTION 1 - PRODUCT AND COMPANY IDENTIFICATION

Product Name: **Oxygen Generator, Chemical** Revision: 4 December, 2002

Product Part Number: 801386 - 22, 32, 34
801386 - 81, 82, 83, 84, 87
801387 - 03, 12, 13, 14, 15, 22, 23, 42
803338 - 01

SCOTT AVIATION
225 Erie Street
Lancaster, NY 14086
Telephone 716-683-5100

CHEMTREC Emergency Telephone Numbers:

United States: 800-424-9300
International: 703-527-3887 (collect)

SECTION 2 - INFORMATION ON INGREDIENTS

<u>CHEMICAL</u>	<u>CAS #</u>	<u>WGT. %</u>	<u>EXPOSURE LIMITS</u>
Sodium Chlorate	7775-09-9	less than 90	none (oxidizer)
Barium Peroxide	1304-29-6	less than 7	OSHA, 0.5 mg/m ³
Potassium Perchlorate	7778-74-7	less than 2	none (oxidizer)
Iron Powder	7439-89-6	less than 7	none, see iron oxide
Silicon Dioxide	14808-60-7	less than 5	OSHA, 10 mg/m ³
Titanium Dioxide	13463-67-7	less than 3	OSHA, 15 mg/m ³
Mica	12001-26-2	less than 2	OSHA, 20 mppcf
Magnesium Oxide	1309-48-4	less than 0.2	OSHA, 15 mg/m ³
Talc	14807-96-6	less than 0.2	OSHA, 20 mppcf
Iron Oxide	1309-37-1	less than 0.1	OSHA, 10 mg/m ³ (fume as iron)

Listed as IARC Carcinogen: silicon dioxide
Listed as NTP Carcinogen: silicon dioxide, talc
OSHA Carcinogen: none

SECTION 3 - HAZARD IDENTIFICATION

Eye Contact: Can burn.

Skin Contact: Sodium chlorate is irritating to skin. May cause rash.

Ingestion: Both barium and sodium chlorate are toxic if ingested. Reported lethal doses of sodium chlorate are 2 grams for children and 15 - 30 grams for adults.

Inhalation: Dust from the chemical core may cause irritation to the mucous membranes, throat and nose.

SECTION 4 - FIRST AID MEASURES

Scott Oxygen Generator, Chemical 801386; -387-XX 4 December, 2002 page 1 of 4

Personal Protection: Impervious gloves, air purifying respirator, safety glasses/goggles and protective clothing should be worn if handling the chemical core or dust from the chemical core.

SECTION 9 - PHYSICAL AND CHEMICAL PROPERTIES

Appearance:	A compressed, gray, chemical core enclosed within a metal canister.		
Vapor Pressure:	not applicable	Vapor Density:	not applicable
Specific Gravity:	varies	Evaporation Rate:	not applicable
Odor:	none	Solubility in Water:	appreciable

SECTION 10 - STABILITY AND REACTIVITY

Conditions To Avoid: Avoid storing, mixing or contaminating with chemicals, mineral acids, and combustible materials.

Incompatibility: Oils, organic metals, and acids.

Hazardous Decomposition Products: Can include chlorine and chlorine dioxide.

Hazardous Polymerization: Will not occur.

Stability: Stable

SECTION 11 - TOXICOLOGICAL PROPERTIES

No data available.

SECTION 12 - ECOLOGICAL INFORMATION

No data available.

SECTION 13 - DISPOSAL CONSIDERATIONS

Generators must be spent prior to disposal. Due to barium within the generator it is considered a hazardous waste even after it is spent. The spent generator must be disposed of in accordance with all Federal, State and local regulations.

SECTION 14 - TRANSPORTATION INFORMATION

DOT Shipping Name: Oxygen Generator, Chemical
DOT Hazard Class: 5.1
DOT Number: UN 3356
Packing Group: II

Notice: Special Shipping restrictions apply. Refer to United States Code of Federal Regulations (CFR 49) or other applicable government regulations. Government approval, exemptions or permits may be required.

SECTION 15 - REGULATORY INFORMATION

This device is a chemical oxygen generator and is classified as an "Article" as defined in 29 CFR 1910.1200 (b) (6) (v) - 1 July 1995. Therefore, this device does not require a Material Safety Data Sheet. However, for Federal procurement, a MSDS is required per Federal Standard No. 313C (GSA Federal Supply Service).

SECTION 16 - OTHER INFORMATION

The information contained herein is, to the best of our knowledge and belief, accurate. However, Scott Aviation assumes no liability whatsoever for the accuracy or completeness of the information contained herein. Final determination of suitability of any material is the sole responsibility of the user. All materials may present unknown hazards and should be used with caution. Although certain hazards are described herein, we cannot guarantee that these are the only hazards which exist. It is the responsibility of the user to comply with all applicable Federal, State, and Local laws and regulations.