

# TECHNICAL SUPPORT DOCUMENT

## PART I *What is the material and what do I need to know in an emergency?*

### 1. PRODUCT IDENTIFICATION

TRADE NAME (AS LABELED): **HYBRID CAPACITOR**

BASIC REFERENCE SOURCES: The following reference materials, described in TABLE 1, were used in the production of the associated Material Safety Data Sheet.

TABLE 1

CHEMICAL COMPONENT	CAS #	% COMPOSITION	REFERENCE MSDS	ECRD	SAX DPIM RTECS Accession #	SIGMA
ACTIVATED CARBON	7440-44-0	10-30%	TDG Record DOT Record National Library of Medicine Record # 5037 CHRIS Record # 252 NIOSH Record ICSC Record #s 0702, 0893 Acros Record Fisher MSDS JT Baker MSDS	/////	CBT 500 FF5250100	Vol 1: Pg 63B
LITHIUM TETRAFLUOROBORATE	14283-07-9	1-2%	Sigma Aldrich MSDS TCI Americas MSDS PubChem Record CID 4298216 ChemSpider Record 3504162 On-Line Database Search	/////	/////	/////
PROPYLENE CARBONATE	108-32-7	10-20%	Cheminfo # 441 National Library of Medicine Record # 6806 PubChem Record CID 7924 ChemSpider Record # 10623079 Sigma Aldrich MSDS On-Line Database Search	/////	CBW 500 FF965000	/////

OTHER REFERENCES: The following list summarizes reference materials that were consulted during preparation of the associated Material Safety Data Sheet.

Brethricks Handbook of Reactive Chemicals Hazards, 4th Ed., Butterworth & Company Publishers, LTD.

Condensed Chemical Dictionary, Sax, N.I., and Lewis, R.J.; Van Nostrand Reinhold

Chapman & Hall Combined Chemical Dictionary, Chapman & Hall Publishers

Chemical Toxicology of Commercial Products, Gleason, M., *et al.*; Williams and Wilkins Co.

Chemical Exposure and Toxic Responses, Lewis, Sr., R.J., Van Nostrand Reinhold

Cooper's Toxic Exposure Desk Reference, Cooper, A. R., Lewis Publishers

CRC Handbook of Chemistry and Physics, Weast, R.C.; CRC Press, Boca Raton, FL

CRC Handbook of Analytical Toxicology, Sunshine, I.S.; Chemical Rubber Co., Cleveland OH

Dangerous Properties of Industrial Materials, Sax, N.I., and Lewis, R.J.; Van Nostrand Reinhold

Emergency Care for Hazardous Materials Exposure, Bronstein, A.C. and Currence, P.L.

Emergency Response Guidebook

Environmental Contaminant Reference Databook (Volumes I & II), Prager, J.C.; Van Nostrand Reinhold

Fire Protection Guide to Hazardous Materials, National Fire Protection Association

Handbook of Emergency Toxicology, Sidney, K.; C.C. Thomas Publisher, Springfield IL

Handbook of Environmental Fate and Exposure Data for Organic Chemicals (Volumes I - IV); Lewis Publishers

Handbook of Pharmaceutical Additives, Ash, Michael and Irene; Gower

Hawley's Condensed Chemical Dictionary (12th ed.), Lewis, R.J., Sr.; Van Nostrand Reinhold

Hazardous Material Information System Implementation Manual and Hazardous Material Information System Raw Materials Rating Manual; National Paint and Coatings Association

Index of Antimicrobials, Ash, Michael and Irene; Gower

Index of Antioxidants, Ash, Michael and Irene; Gower

Index of Flame Retardants, Ash, Michael and Irene; Gower

Index of Solvents, Ash, Michael and Irene; Gower

Merck Index (12th ed.), Budavari, S. (Ed.); Merck & Co., Inc.

Quick Guide, NIOSH/EPA Chemical Database.

Sigma-Aldrich Library of Chemical Safety Data, Lewis, R.E.; Sigma-Aldrich

WHMIS Compliance Procedure Manual, International Compliance Center Ltd.

### 2. HAZARD IDENTIFICATION

GLOBAL HARMONIZATION STANDARD LABELING AND CLASSIFICATION: Classification based on criteria as defined in Globally Harmonised System of Classification and Labelling of Chemicals (GHS), Third Revised Edition.

EU CLP LABELING AND CLASSIFICATION: Classification based on criteria as defined in Regulation (EC) 1272/2008 and subsequent amendments to the regulation.

EU DANGEROUS SUBSTANCES DIRECTIVE AND DANGEROUS PREPARATIONS DIRECTIVE LABELING AND CLASSIFICATION: Classification based on criteria as defined in European Union Directives 67/548/EEC and 1999/45/EC and subsequent amendments to the directives.

AUSTRALIAN NATIONAL OCCUPATION HEALTH AND SAFETY COMMISSION LABELING AND CLASSIFICATION: Classification based on criteria as defined in Australian National Occupational Health and Safety Commission Approved Criteria for Classifying Hazardous Substances [NOHSC:1008(2004)] 3rd Edition.

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### 3. COMPOSITION and INFORMATION ON INGREDIENTS

CHEMICAL NAME: Information supplied by Ioxus (corroborated by CSA).  
CAS NUMBER: Information from: Table 1 references or an on-line database search.  
PERCENT: Information from Ioxus.

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## PART II *What should I do if a hazardous situation occurs?*

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### 4. FIRST-AID MEASURES

Basic statement derived from standard first-aid treatment recommended in the following documents:

Emergency Care for Hazardous Materials Exposure  
Sigma-Aldrich Chemical Library  
Physician's Desk Reference  
National Library of Medicine Records

IMMEDIATE MEDICAL ATTENTION AND SPECIAL TREATMENT NEEDED: Information from Emergency Care for Hazardous Materials Exposure, National Library of Medicine records for components (when available) and on-line databases. Modified as needed by CSA, based on the information provided by the references described in Table 1 of this document.

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### 5. FIRE-FIGHTING MEASURES

INFORMATION FROM: 2008 Emergency Response Guidebook  
Review of Information in TABLE 1  
NFPA 704 System Information

NFPA Rating was determined using the criteria of the NFPA 704 System Information. The NFPA rating assigned by CSA is: For Product: 0-0-0, based on the physical and health hazards associated with this product.

Health Hazard Rating = 0; This product is an article and presents minimal health hazards.

Flammability Hazard Rating = 0; This product is not flammable or combustible.

Instability Hazard Rating = 0; This product is not reactive.

For Electrolyte Solution: 2-1-0, based on the physical and health hazards associated with this product.

Health Hazard Rating = 2; This solution may cause moderate irritation or burns if contact is prolonged.

Flammability Hazard Rating = 1; This solution may be combustible and ignite if exposed to high temperature or direct flame.

Instability Hazard Rating = 0; This product is not reactive.

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### 6. ACCIDENTAL RELEASE MEASURES

The information presented provides general safe spill response procedures, recognizing the size of potential spills and the training and experience of persons who are expected to handle this material.

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## PART III *How can I prevent hazardous situations from occurring?*

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### 7. HANDLING and STORAGE

Information from review of TABLE 1 references. Additional information was from CSA's Hazardous Chemical Safety manual.

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### 8. EXPOSURE CONTROLS - PERSONAL PROTECTION

Information from review of TABLE 1 and Prudent Practices in the Laboratory, National Academy Press, Washington, D.C., 1981, and NIOSH respiratory protection and other personal protection guidelines. Additional information from NIOSH personal protective guidelines.

PEL: 29 CFR 1910.1000, 1990 from the Occupational Safety and Health Administration. The OSHA Permissible Exposure Limits are based in the 1989 PELs and the June, 1993 Air Contaminants Rule (Federal Register: 58: 35338-35351 and 58: 40191). Both the current PELs and the vacated PELs are indicated. The current PELs are the ones that are enforced by OSHA under the regulations; however, over-exposures above the PELs which were vacated may be considered violations under the "General Duty Clause", as contained in section 5(a)(1) of the Occupational Safety and Health Act.

Both values are provided, to give end-users of this product the most complete information on exposure limits pertinent to the components.

TLV: Information from 2011 Threshold Limit Values (TLVs) for Chemical Substances and Physical Agents and Biological Exposure Indices (BEIs), American Conference of Governmental Industrial Hygienists.

COMMENTS: Additional information from the following:  
National Institute of Occupational Safety and Health: Pocket Guide to Chemical Hazards  
Occupational Safety and Health Administration (1910 Subpart Z)

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### 9. PHYSICAL and CHEMICAL PROPERTIES

INFORMATION FROM: Information from Ioxus.

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### 10. STABILITY and REACTIVITY

INFORMATION FROM: References in Table 1.

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## **PART IV** *Is there any other useful information about this material?*

### **11. TOXICOLOGICAL INFORMATION**

**INFORMATION FROM:** Review of references in Table 1 and other references listed.

**HMIS RATING:** The HMIS System Rating was determined after review of the HMIS Tables. These tables appear at the end of this document.

For Product: 0-0-0, based on the physical and health hazards associated with this product.

Health Hazard Rating = 0; This product is an article and presents minimal health hazards.

Flammability Hazard Rating = 0; This product is not flammable or combustible.

Physical Hazard Rating = 0; This product is not reactive.

For Electrolyte Solution: 0-0-1, based on the physical and health hazards associated with this product.

Health Hazard Rating = 2; This solution can cause toxic effect by inhalation, ingestion or skin contact.

Flammability Hazard Rating = 0; This solution is not flammable.

Physical Hazard Rating = 0; This product is not reactive.

**TOXICITY DATA:** Information from NIOSH Registry of Toxic Effect of Chemical Substances (RTECS).

#### **ACTIVATED CARBON:**

LD (Oral-Rat) > 5 gm/kg.....YAKUD5 Gekkan Yakuji. Pharmaceuticals Monthly. (Yakugyo Jihosha, Inaoka Bldg., 2-36 Jinbo-cho, Kanda, Chiyoda-ku, Tokyo 101, Japan) V.1-1959-Volume(issue)/page/year: 34,416,1992

LD (Oral-Mouse) > 5 gm/kg.....YAKUD5 Gekkan Yakuji. Pharmaceuticals Monthly. (Yakugyo Jihosha, Inaoka Bldg., 2-36 Jinbo-cho, Kanda, Chiyoda-ku, Tokyo 101, Japan) V.1-1959-Volume(issue)/page/year: 34,416,1992

LD (Oral-Dog) > 5 gm/kg.....YAKUD5 Gekkan Yakuji. Pharmaceuticals Monthly. (Yakugyo Jihosha, Inaoka Bldg., 2-36 Jinbo-cho, Kanda, Chiyoda-ku, Tokyo 101, Japan) V.1-1959-Volume(issue)/page/year: 34,416,1992

LD (Intraperitoneal-Rat) > 5 gm/kg.....YAKUD5 Gekkan Yakuji. Pharmaceuticals Monthly. (Yakugyo Jihosha, Inaoka Bldg., 2-36 Jinbo-cho, Kanda, Chiyoda-ku, Tokyo 101, Japan) V.1-1959-Volume(issue)/page/year: 34,416,1992

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LD (Intraperitoneal-Dog) > 5 gm/kg.....YAKUD5 Gekkan Yakuji. Pharmaceuticals Monthly. (Yakugyo Jihosha, Inaoka Bldg., 2-36 Jinbo-cho, Kanda, Chiyoda-ku, Tokyo 101, Japan) V.1-1959-Volume(issue)/page/year: 34,416,1992

LD (Subcutaneous-Rat) > 5 gm/kg.....YAKUD5 Gekkan Yakuji. Pharmaceuticals Monthly. (Yakugyo Jihosha, Inaoka Bldg., 2-36 Jinbo-cho, Kanda, Chiyoda-ku, Tokyo 101, Japan) V.1-1959-Volume(issue)/page/year: 34,416,1992

LD (Subcutaneous-Mouse) > 5 gm/kg.....YAKUD5 Gekkan Yakuji. Pharmaceuticals Monthly. (Yakugyo Jihosha, Inaoka Bldg., 2-36 Jinbo-cho, Kanda, Chiyoda-ku, Tokyo 101, Japan) V.1-1959-Volume(issue)/page/year: 34,416,1992

LD (Subcutaneous-Dog) > 5 gm/kg.....YAKUD5 Gekkan Yakuji. Pharmaceuticals Monthly. (Yakugyo Jihosha, Inaoka Bldg., 2-36 Jinbo-cho, Kanda, Chiyoda-ku, Tokyo 101, Japan) V.1-1959-Volume(issue)/page/year: 34,416,1992

LD<sub>50</sub> (Intravenous-Mouse) 440 mg/kg.....TXAPA9 Toxicology and Applied Pharmacology. (Academic Press, Inc., 1 E. First St., Duluth, MN 55802) V.1-1959-Volume(issue)/page/year: 24,497,1973

TDLo (Subcutaneous-Rat) 167 mg/kg; female 8 day(s) after conception: Reproductive: Fertility: post-implantation mortality (e.g. dead and/or resorbed implants per total number of implants).....TJADAB Teratology, The International Journal of Abnormal Development. (Alan R. Liss, Inc., 41 E. 11th St., New York, NY 10003) V.1-1968-Volume(issue)/page/year: 4,327,1971

#### **PROPYLENE CARBONATE:**

Standard Draize Test (Skin-Human) 100 mg/3 days-intermittent: Moderate.....85DKA8 "Cutaneous Toxicity, Proceedings of the 3rd Conference, 1976," Drill, V.A., and P. Lazar, eds., New York, Academic Press, Inc. 1977 Volume(issue)/page/year: -,127,1977

Standard Draize Test (Skin-Rabbit) 500 mg: Moderate.....JACTDZ Journal of the American College of Toxicology. (Mary Ann Liebert, Inc., 1651 Third Ave., New York, NY 10128) V.1-12, 1982-1993. Discontinued. Volume(issue)/page/year: 6(1),23,1987

Standard Draize Test (Eye-Rabbit) 60 mg: Moderate.....UCDS\*\* Union Carbide Data Sheet. (Union Carbide Corp., 39 Old Ridgebury Rd., Danbury, CT 06817) Volume(issue)/page/year: 4/25/1958

LC<sub>50</sub> (Inhalation-Rat) > 5 gm/m<sup>3</sup>.....USXXAM United States Patent Document. (U.S. Patent Office, Box 9, Washington, DC 20231) Volume(issue)/page/year: #5122301

LD<sub>50</sub> (Oral-Rat) 29,100 µL/kg.....UCDS\*\* Union Carbide Data Sheet. (Union Carbide Corp., 39 Old Ridgebury Rd., Danbury, CT 06817) Volume(issue)/page/year: 4/25/1958

LD<sub>50</sub> (Oral-Rat) > 5000 mg/kg.....FEREAC Federal Register. (U.S. Government Printing Office, Supt. of Documents, Washington, DC 20402) V.1-1936-Volume(issue)/page/year: 68,52695,2003

LD<sub>50</sub> (Oral-Mouse) 20,700 mg/kg.....JACTDZ Journal of the American College of Toxicology. (Mary Ann Liebert, Inc., 1651 Third Ave., New York, NY 10128) V.1-12, 1982-1993. Discontinued. Volume(issue)/page/year: 6(1),23,1987

LD<sub>50</sub> (Skin-Rabbit) > 20 mL/kg.....UCDS\*\* Union Carbide Data Sheet. (Union Carbide Corp., 39 Old Ridgebury Rd., Danbury, CT 06817) Volume(issue)/page/year: 4/25/1958

LD<sub>50</sub> (Skin-Rabbit) > 2000 mg/kg.....FEREAC Federal Register. (U.S. Government Printing Office, Supt. of Documents, Washington, DC 20402) V.1-1936-Volume(issue)/page/year: 68,52695,2003

LD<sub>50</sub> (Subcutaneous-Rat) 11,100 mg/kg: Behavioral: altered sleep time (including change in righting reflex), somnolence (general depressed activity).....SKIZAB Shikoku Igaku Zasshi. Shikoku Medical Journal. (Tokushima Igakkai, Tokushima Daigaku Igakubu, Kuramoto-cho, Tokushima 770, Japan) V.1-1950-Volume(issue)/page/year: 28,276,1972

LD<sub>50</sub> (Subcutaneous-Mouse) 15,800 mg/kg: Behavioral: altered sleep time (including change in righting reflex), somnolence (general depressed activity).....SKIZAB Shikoku Igaku Zasshi. Shikoku Medical Journal. (Tokushima Igakkai, Tokushima Daigaku Igakubu, Kuramoto-cho, Tokushima 770, Japan) V.1-1950-Volume(issue)/page/year: 28,276,1972

LD (Intraperitoneal-Mouse) > 500 mg/kg.....CBCCT\* "Summary Tables of Biological Tests," National Research Council Chemical-Biological Coordination Center. (National Academy of Science Library, 2101 Constitution Ave., NW, Washington, DC 20418) Volume(issue)/page/year: 6,218,1954

TCLo (Inhalation-Rat) 500 mg/m<sup>3</sup>/93 days-continuous: Sense Organs and Special Senses (Eye): conjunctive irritation.....HPV359 U.S. Environmental Protection Agency; High Production Volume (HPV) Challenge; Propylene Carbonate.pdf (<http://www.epa.gov/HPV/pubs/summaries/viewsrch.htm>) Volume(issue)/page/year: -,2002

TDLo (Oral-Rat) 30,000 mg/kg; female 6-15 day(s) after conception: Reproductive: Maternal Effects: other effects.....HPV359 U.S. Environmental Protection Agency; High Production Volume (HPV) Challenge; Propylene Carbonate.pdf (<http://www.epa.gov/HPV/pubs/summaries/viewsrch.htm>) Volume(issue)/page/year: 2002

**IRRITANCY OF PRODUCT:** Information from Table 1 references. WHMIS defines irritancy as "the ability of the material to cause a reversible inflammatory response in a body, usually to the skin or the mucous membranes, when in sufficient concentration over a period of time."

**SENSITIZATION TO THE PRODUCT:** Information from Table 1 references. WHMIS defines sensitization as "the ability of the product to cause a person to develop an immune response, allergy, or other reaction following exposure to the material."

**REPRODUCTIVE TOXICITY INFORMATION:** Information from references in Table 1 and NIOSH Registry of Toxic Effect of Chemical Substances (RTECS).

**CARCINOGENIC POTENTIAL:** The National Toxicology Program, the International Agency for Research on Cancer, the OSHA carcinogen lists, and the State of California carcinogen list (Title 8, Article 110, Regulated Carcinogens) were consulted to determine the carcinogenic status of this product.

**BIOLOGICAL EXPOSURE INDICES:** Information from 2011 Threshold Limit Values (TLVs) for Chemical Substances and Physical Agents and Biological Exposure Indices (BEIs), American Conference of Governmental Industrial Hygienists.

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## 12. ECOLOGICAL INFORMATION

Information from references in TABLE 1. Reasonable judgment on the part of CSA was employed to assess potential ecological impact based on the expected use and type of packaging in which the product is offered. All appropriate environmental hazard information was provided, as deemed appropriate from the label warnings and a review of hazard information.

Handbook of Environmental Fate and Exposure Data, Howard, P.H., *et al.*, Lewis Publishers

Environmental Contaminant Reference Databook (Volumes I & II), Prager, J.C.

Chemical Evaluation Search and Retrieval System

Chemical Hazards Response Information System

National Library of Medicine Records for components

AQUATIC TOXICITY DATA: From Sigma Aldrich.

### **PROPYLENE CARBONATE:**

EC<sub>50</sub> (*Daphnia magna* Water flea) 48 hours = > 500 mg/L.....Sigma Aldrich MSDS

EC<sub>50</sub> (*Desmodesmus subspicatus* green algae) 72 hours = > 500 mg/L.....Sigma Aldrich MSDS

LC<sub>50</sub> (Bacteria) 72 hours = > 10,000 mg/L.....Sigma Aldrich

LC<sub>50</sub> (*Leuciscus idus* Golden orfe) 96 hours = 5,300 mg/L.....Sigma Aldrich MSDS

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## 13. DISPOSAL CONSIDERATIONS

U.S. EPA WASTE DISPOSAL INFORMATION: Standard statement prepared by CSA after review of 40 CFR 261. Because hazardous material regulations vary from area to area, adherence to Federal, State, and local hazardous waste disposal regulations is stressed.

U.S. EPA WASTE NUMBER: From 49 CFR Section 172.101, Table 1 to Appendix A.

EWC WASTE CODES: From Commission Decision 2000/532/EC, Commission Decision 2001/118/EC, Commission Decision 2001/119/EC and Commission Decision 2001/573/EC.

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## 14. TRANSPORTATION INFORMATION

U.S. DEPARTMENT OF TRANSPORTATION: Information from Hazardous Materials Regulations 49 CFR Parts 100–185.

TRANSPORT CANADA: Information from Transportation of Dangerous Goods Regulations.

INTERNATIONAL AIR TRANSPORT ASSOCIATION (IATA): Information from Dangerous Goods Regulations.

INTERNATIONAL MARITIME ORGANIZATION (IMO): IMO information from International Maritime Dangerous Goods Code.

UNITED NATIONS ECONOMIC COMMISSION FOR EUROPE (UNECE): European Agreement Concerning the International Carriage of Dangerous Goods by Road.

AUSTRALIAN NATIONAL TRANSPORT COMMISSION: Australian Dangerous Goods Code Road and Rail.

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## 15. REGULATORY INFORMATION

### **ADDITIONAL U.S. REGULATIONS:**

U.S. SARA 313 STATUS: 40 CFR 372, Toxic Chemical Release Reporting: Community Right-To-Know sets forth the requirements for the submission of information relating to the release of toxic chemicals under Section 313 of the Superfund Amendments and Reauthorization Act (SARA) of 1986. SARA 313 Status of this product was determined by using the SARA Chemical Database from the U.S. EPA, latest edition. Additional information is from "Title III List of Lists" (US EPA, 2010).

U.S. CERCLA STATUS: 40 CFR 300.

U.S. TSCA STATUS: TSCA On-line review.

OTHER U.S. FEDERAL REGULATIONS: Information from the Code of Federal Regulations.

### **ADDITIONAL CANADIAN REGULATIONS:**

OTHER CANADIAN REGULATIONS: Information from the Canadian Code of Regulations.

CANADIAN PRIORITY SUBSTANCES LISTS: Information from Environment Canada database.

CANADIAN DSL/NDL STATUS: From CHEMINFO CD ROM list, taken from the current Canadian Environment Protection Act (CEPA) by Environment Canada.

CANADIAN WHMIS CLASSIFICATION and SYMBOLS: From the WHMIS Compliance Procedure Manual, Section on "Labels and Labeling".

### **ADDITIONAL EUROPEAN REGULATIONS:**

SAFETY, HEALTH, AND ENVIRONMENTAL REGULATIONS/LEGISLATION SPECIFIC FOR THE PRODUCT: Search of the Official Website of the European Union and EUR-Lex.

CHEMICAL SAFETY ASSESSMENT: The chemical safety assessment is required for some substances according to European Union Regulation (EC) 1907/2006, Article 14. No assessment was provided by Ioxus.

### **ADDITIONAL AUSTRALIAN REGULATIONS:**

AUSTRALIAN INVENTORY OF CHEMICAL SUBSTANCES (AICS) STATUS: From Australian Government Department of Health and Aging NICNAS website AICS Search Page.

HAZARDOUS SUBSTANCES INFORMATION SYSTEM (HSIS): From Australian Government Department of Employment and Workplace Relations HSIS Search Page.

STANDARD FOR THE UNIFORM SCHEDULING OF MEDICINES AND POISONS: From Australian Government Department of Health and Aging Therapeutic Goods Administration Poisons Standard page.

### **ADDITIONAL JAPANESE REGULATIONS:**

JAPANESE ENCS: From current listing of the Japanese ENC Inventory.

POISONOUS AND DELETERIOUS SUBSTANCES CONTROL LAW: From current regulation.

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## 16. OTHER INFORMATION

U.S. ANSI LABEL INFORMATION: CSA uses the American National Standards Institute (ANSI) labeling standard, Z129.1-2010, as the basis for label preparation. The standard recommends the following information on a commercial chemical product label:

- |  |   |
|--|---|
| a. Identity of product and hazardous constituents. | g. Antidotes.                                       |
| b. Signal Word: DANGER!, WARNING!, or CAUTION!     | h. Notes to physicians.                             |
| c. Statement of hazard.                            | i. Instructions in case of fire, spill, or leak.    |
| d. Precautionary measures.                         | j. Instructions for container handling and storage. |
| e. Instructions in case of contact or exposure.    | k. Other useful information.                        |
| f. Target Organs.                                  | l. Name, address and phone number of manufacturer.  |

GLOBAL HARMONIZATION STANDARD LABELING AND CLASSIFICATION: Classification based on criteria as defined in Globally Harmonised System of Classification and Labelling of Chemicals (GHS), Third Revised Edition.

EU CLP LABELING AND CLASSIFICATION: Classification based on criteria as defined in Regulation (EC) 1272/2008 and subsequent amendments to the regulation.

EU DANGEROUS SUBSTANCES DIRECTIVE AND DANGEROUS PREPARATIONS DIRECTIVE LABELING AND CLASSIFICATION: Classification based on criteria as defined in European Union Directives 67/548/EEC and 1999/45/EC and subsequent amendments to the directives.

AUSTRALIAN NATIONAL OCCUPATION HEALTH AND SAFETY COMMISSION LABELING AND CLASSIFICATION: Classification based on criteria as defined in Australian National Occupational Health and Safety Commission Approved Criteria for Classifying Hazardous Substances [NOHSC:1008(2004)].

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## 16. OTHER INFORMATION

### **PREPARED BY:**

CHEMICAL SAFETY ASSOCIATES, Inc.

PO BOX 1961, Hilo, HI 96721

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DATE OF PREPARATION: September 3, 2011

# HAZARDOUS MATERIAL INFORMATION SYSTEM CLASSIFICATION

MATERIAL: <b>HYBRID CAPACITOR</b>		FLASH POINT: Not applicable.	
CAS #: Provided for components.		BOILING POINT: Not applicable.	
ODOR: Odorless		ODOR THRESHOLD: Not applicable.	
TLV: None.		PEL: None.	
STEL: None.		IDLH: None.	
CARCINOGEN: Not applicable.		CLASSIFIED BY LISTING: Not applicable.	
HEALTH HAZARD RATING:	2	FLAMMABILITY HAZARD RATING:	0
PHYSICAL HAZARD RATING:	0		

## Health Hazard Rating (Acute Toxic Properties)

A	Oral LD <sub>50</sub> Rat	B	Dermal LD <sub>50</sub> Rabbit
0	> 5000 mg/kg (Activated Carbon)	0	> 5000 mg/kg
1	> 500–5000 mg/kg (Propylene Carbonate)	1	> 1000–5000 mg/kg (Propylene Carbonate)
2	> 50–500 mg/kg	2	> 200–1000 mg/kg
3	> 1–50 mg/kg	3	> 20–200 mg/kg
4	< 1 mg/kg	4	< 20 mg/kg
	No data available.		No data available.
C	Inhalation - gases LC <sub>50</sub> Rat - 1 Hr	D	Dusts, fumes mists LC <sub>50</sub> Rat - 1 hr
0	> 10000 ppm	0	> 200 mg/L
1	> 2000–10000 ppm	1	> 20–200 mg/L
2	> 200–2000 ppm	2	> 2–20 mg/L
3	> 20–200 ppm	3	> 0.2–2 mg/L
4	< 20 ppm	4	< 0.2 mg/L
	No data available.		No data available.
E	Skin Irritation - 4 Hr Exposure	D	Eye Irritation
0	Essentially non-irritating.	0	Essentially non-irritating.
1	Slightly irritating.	1	Slightly irritating but reversible within 7 days.
2	Primary irritant, sensitizer.	2	Irritating or moderately irritating, persisting for more than 7 days with reversible corneal opacity.
3	Severely irritating and/or corrosive.	3	Corrosive, irreversible corneal opacity.
4		4	
	No data available.		No data available.

II	FLAMMABILITY HAZARD CRITERIA
0	Minimal Hazard—Materials that will not burn in air when exposed to temperatures in excess of 1500°F for a period of 5 minutes.
1	Slight Hazard—Materials that require considerable preheating before burning. Materials with a flash point above 200°F or that burn when heated to 1500°F for 5 minutes.
2	Moderate Hazard—Materials that must be heated to a relatively high temperature before ignition can occur. Liquids with a flash point of 100–200°F; solids and semi-solids that readily release ignitable gases.
3	Serious Hazard—Materials that produce flammable, hazardous atmospheres with air under almost all ambient conditions or that are readily ignited (including liquids with a flash point below 73°F and a boiling point at or above 100°F or liquids with a flash point between 73 and 100°F). Class 1B and 1C flammable liquids.
4	Severe Hazard—Materials that will readily, rapidly or completely vaporize at atmospheric pressure and normal room temperature and burn readily (including gases, Class 1A flammable liquids, and explosive materials).
	No data available.

III	PHYSICAL HAZARD CRITERIA
0	Minimal Hazard—Materials that are normally stable and are not water reactive.
1	Slight Hazard—Materials that can become unstable at elevated temperatures or that may react with water with the release of some energy, but not violently.
2	Moderate Hazard—Materials that are normally unstable and readily undergo violent chemical reaction, but that do not detonate. This includes materials that react violently with water.
3	Serious Hazard—Materials that are of themselves detonable, but that require a strong initiating force or that must be heated under confinement or are sensitive to thermal or mechanical shock at elevated temperatures or that react explosively with water.
4	Severe Hazard—Materials that in themselves can detonate at normal temperature and pressure, including those that are sensitive to thermal or mechanical shock at normal temperature and pressure.
	No data available.