1. PRODUCT IDENTIFICATION

1.1 Product Name:
PRIUS HV BATTERY

1.2 Chemical Name:
NICKEL METAL HYDRIDE BATTERY

1.3 Synonyms:
PRIUS HIGH VOLTAGE BATTERY, PRIUS HYBRID VEHICLE BATTERY, PRIUS EV BATTERY, NiMH BATTERY

1.4 Trade Names:
PRIUS HV BATTERY, NiMH BATTERY

1.5 Product Use:
HYBRID VEHICLE BATTERY

1.6 Manufacturer’s Name:
PANASONIC EV ENERGY CO., LTD.

1.7 Manufacturer’s Address:
555 SAKAI JUKU, KOSAI, SHIZUOKA 431-0452 JAPAN

1.8 Emergency Phone:
CHEMTREC 1-800-424-9300 (INTERNATIONAL 001-1-703-527-3887)

1.9 Business Phone:
+81 53 577 3112, OSAMU TAKAHASHI

2. HAZARD IDENTIFICATION

2.1 Hazard Identification:
THIS PRODUCT IS CLASSIFIED AS A HAZARDOUS SUBSTANCE AND AS DANGEROUS GOODS ACCORDING TO THE CLASSIFICATION CRITERIA OF NOHSC AND ADG CODE (AUSTRALIA). HIGH VOLTAGE, CORROSIVE ELECTROLYTE.

2.2 Routes of Entry: Inhalation: NO Absorption: YES Ingestion: NO

2.3 Effects of Exposure:
INHALATION, ABSORPTION & INGESTION IS UNLIKELY UNDER NORMAL CONDITIONS AS THE BATTERY IS ENCLOSED IN A STEEL CASE. HOWEVER, IF CASE IS CRUSHED, OR COMPROMISED IN A FIRE, CONTACT WITH THE ELECTROLYTE MAY CAUSE DAMAGE TO EYES & SKIN TISSUE AS WELL AS THE NOSE, THROAT, LUNGS & RESPIRATORY TRACT IF INHALED. INGESTION OF THE ELECTROLYTE MAY CAUSE SEVERE IRRITATION & DISCOMFORT TO THE ESOPHAGUS, STOMACH & DIGESTIVE TRACT.

2.4 Symptoms of Exposure:
EYES & SKIN: IRRITATION, REDNESS & SWELLING.
INHALATION: RESPIRATORY DISTRESS, SHALLOW & LABORED BREATHING DUE TO IRRITATION & SWELLING.
INGESTION: SEVERE PAIN IN THE MOUTH, THROAT & ESOPHAGUS. IRRITATION, REDNESS & SWELLING.

2.5 Acute Health Effects:
DAMAGE TO SKIN TISSUES & EYES FOLLOWING EXPOSURE.

2.6 Chronic Health Effects:
NO CHRONIC HEALTH EFFECTS FOR THE ELECTROLYTE ARE KNOWN. DAMAGE TO EYES, INCLUDING PARTIAL OR FULL VISION LOSS, COULD OCCUR. NICKEL METAL & ITS COMPOUNDS ARE SUSPECTED CARCINOGENS; HOWEVER, THE ACUTE & CHRONIC EFFECTS OF NICKEL ALLOYS ARE NOT KNOWN. EXPOSURE TO NICKEL OR ITS COMPOUNDS IS UNLIKELY AS THE BATTERY IS ENCLOSED IN A STEEL CASE.

2.7 Target Organs:
EYES, NOSE, MOUTH, THROAT, RESPIRATORY & DIGESTIVE TRACTS.
### 3. COMPOSITION & INGREDIENT INFORMATION

<table>
<thead>
<tr>
<th>CHEMICAL NAME(S)</th>
<th>CAS NO./ RTECS No.</th>
<th>%</th>
<th>EXPOSURE LIMITS IN AIR (mg/m³)</th>
<th>OTHER</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>ACGIH</td>
<td>OSHA</td>
</tr>
<tr>
<td>POSITIVE ELECTRODE (comprised of):</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• NICKEL HYDROXIDE, Ni(OH)₂</td>
<td>12054-48-7</td>
<td>1</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>NEGATIVE ELECTRODE (comprised of):</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• NICKEL METAL ALLOY comprised of:</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• NICKEL METAL ALLOY comprised of:</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• NICKEL METAL ALLOY comprised of:</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>NEGATIVE ELECTRODE (comprised of):</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• NICKEL METAL ALLOY comprised of:</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ELECTROLYTE (comprised of):</td>
<td>&lt; 10.0</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• POTASSIUM HYDROXIDE, KOH</td>
<td>1310-58-3</td>
<td>2</td>
<td>NA</td>
<td></td>
</tr>
<tr>
<td>• SODIUM HYDROXIDE, NaOH</td>
<td>1310-73-2</td>
<td>2</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>• LITHIUM HYDROXIDE, LiOH</td>
<td>1310-65-2</td>
<td>NA</td>
<td>NA</td>
<td></td>
</tr>
<tr>
<td>* NIOSH: RECOMMENDED EXPOSURE LIMIT IS 0.015 mg/m³ FOR NICKEL &amp; ITS COMPOUNDS (MEASURED AS NICKEL).</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### 4. FIRST AID MEASURES

#### 4.1 First Aid:

**EYES & SKIN:** REMOVE CONTAMINATED CLOTHING IMMEDIATELY. BATTERY ELECTROLYTE IS FULLY SOLUBLE IN WATER. FLOOD AFFECTED AREA WITH WATER FOR AT LEAST 20 MINUTES. SEEK MEDICAL ATTENTION.

**INHALATION:** MOVE VICTIM TO FRESH AIR. PROVIDE OXYGEN, IF NECESSARY. CONSULT A PHYSICIAN IMMEDIATELY.

**INGESTION:** DO NOT INDUCE VOMITING! DRINK LARGE QUANTITIES OF WATER TO DILUTE ELECTROLYTE. CONSULT A PHYSICIAN IMMEDIATELY. IF VOMITING OCCURS SPONTANEOUSLY, KEEP VICTIMS HEAD LOWERED & FORWARD TO REDUCE THE RISK OF ASPIRATION. CONTINUE TO OFFER WATER TO DILUTE ELECTROLYTE. NEVER GIVE WATER TO AN UNCONSCIOUS PERSON. CONSULT A PHYSICIAN IMMEDIATELY.

#### 4.2 Medical Conditions Aggravated by Exposure:

NONE KNOWN.

EXPOSURE UNLIKELY AS THE BATTERY IS ENCLOSED IN A STEEL CASE.
5. FIREFIGHTING MEASURES

5.1 Flashpoint & Method:

NOT FLAMMABLE UNDER NORMAL CONDITIONS. HOWEVER, BATTERY WILL BURN IF INVOLVED IN A FIRE.

5.2 Autoignition Temperature:

NA

5.3 Flammability Limits:

<table>
<thead>
<tr>
<th>Lower Explosive Limit (LEL):</th>
<th>ND</th>
</tr>
</thead>
<tbody>
<tr>
<td>Upper Explosive Limit (UEL):</td>
<td>ND</td>
</tr>
</tbody>
</table>

5.4 Fire & Explosion Hazards:

IF THE BATTERY IS OVERCHARGED, HYDROGEN GAS MAY BE FORMED. HYDROGEN GAS IS EXTREMELY FLAMMABLE. THE HYDROGEN GAS, IF ANY, WILL BE VENTED FROM THE BATTERY TO ATMOSPHERE. DO NOT OPEN THE BATTERY CASE UNDER ANY CIRCUMSTANCES.

5.5 Extinguishing Methods:

NOT FLAMMABLE UNDER NORMAL CONDITIONS. HOWEVER, BATTERY WILL BURN IF INVOLVED IN A FIRE. CALL FIRE DEPARTMENT. COOL EXTERIOR OF BATTERY IF EXPOSED TO FIRE TO PREVENT RUPTURE. THE ELECTROLYTE VAPORS GENERATED BY HEAT OR FIRE ARE CORROSIVE. AVOID OPEN FLAMES, SPARKS OR OTHER IGNITION SOURCES NEAR BATTERY. TO AVOID RISK OF FIRE OR EXPLOSION, KEEP SPARKS AND OTHER IGNITION SOURCES AWAY FROM BATTERY AND DO NOT ALLOW METALLIC OBJECTS TO SIMULTANEOUSLY CONTACT NEGATIVE AND POSITIVE TERMINALS OF CELLS OR BATTERIES.

5.6 Firefighting Procedures:

DO NOT OPEN THE BATTERY CASE UNDER ANY CIRCUMSTANCES. ELECTRIC SHOCK COULD OCCUR IF BOTH HIGH VOLTAGE WIRES ARE CUT SIMULTANEOUSLY. SCBA SHOULD BE WORN WHEN FIGHTING FIRES.

6. ACCIDENTAL RELEASE MEASURES

6.1 Spills:

SPILLS ARE UNLIKELY AS THE BATTERY IS ENCLOSED IN A STEEL CASE AND THE ELECTROLYTE IS ABSORBED ONTO A SUBSTRATE AND CANNOT FLOW UNDER NORMAL CONDITIONS. HOWEVER, IF BATTERY IS CRUSHED, OR COMPROMISED IN A FIRE, ANY RELEASED ELECTROLYTE SHOULD BE CONTAINED AND ABSORBED WITH SUITABLE ABSORBENT MATERIAL (e.g., SAND, VERMICULITE, DIATOMACEOUS EARTH). RESIDUES MAY BE NEUTRALIZED USING WEAK ACID SOLUTION (e.g., VINEGAR OR BORIC ACID SOLUTION (800 g (1.5 lbs) in 20 L (5 gls) WATER)). DISPOSE OF ABSORBED AND CONTAINED MATERIAL IN ACCORDANCE WITH LOCAL, STATE & FEDERAL HAZARDOUS WASTE LAWS.

7. HANDLING & STORAGE INFORMATION

7.1 Work & Hygiene Practices:

FOLLOW NORMAL HYGIENE PRACTICES. DO NOT OPEN THE BATTERY CASE UNDER ANY CIRCUMSTANCES, AS THERE IS A RISK OF ELECTRIC SHOCK. WEAR PROTECTIVE EYEWEAR (E.G., SAFETY GLASSES) & GLOVES WHEN HANDLING THIS BATTERY.

7.2 Storage & Handling:

KEEP AWAY FROM SOURCES OF IGNITION. IN STORAGE, BATTERY SHOULD BE SECURED TO A PALLET & COVERED WITH A NON-CONDUCTIVE COVERING (e.g., PLASTIC WRAP, SHRINK-WRAP). AVOID INCINERATION OR UNUSUAL HIGH CURRENT CHARGE THAT MAY CAUSE A BATTERY CASE TO RUPTURE OR CATCH FIRE.

7.3 Special Precautions:

DO NOT OPEN THE BATTERY CASE UNDER ANY CIRCUMSTANCES, AS THERE IS A RISK OF ELECTRIC SHOCK. DO NOT SHORT-CIRCUIT BATTERY.
### 8. EXPOSURE CONTROLS & PERSONAL PROTECTION

8.1 **Ventilation & Engineering Controls:**

*NOT REQUIRED UNDER NORMAL CONDITIONS OF USE & TRANSPORT.*

8.2 **Respiratory Protection:**

*NOT REQUIRED UNDER NORMAL CONDITIONS OF USE & TRANSPORT. HOWEVER, IF INVOLVED IN A FIRE, WEAR NIOSH/MSA APPROVED SCBA.*

8.3 **Eye Protection:**

*WEAR APPROPRIATE EYE PROTECTION. THE USE OF SAFETY GLASSES AND/OR SPLASH SHIELD IS SUGGESTED IF ELECTROLYTE IS RELEASED.*

8.4 **Hand Protection:**

*WEAR APPROPRIATE HAND PROTECTION. THE USE OF RUBBER, LATEX OR NITRILE GLOVES IS SUGGESTED IF ELECTROLYTE IS RELEASED.*

8.5 **Body Protection:**

*NOT REQUIRED UNDER NORMAL CONDITIONS OF USE & TRANSPORT. HOWEVER, A RUBBER APRON OR OTHER SUITABLE PROTECTIVE CLOTHING IS SUGGESTED IF ELECTROLYTE IS RELEASED.*

### 9. PHYSICAL & CHEMICAL PROPERTIES

9.1 **Density:**

*NA*

9.2 **Boiling Point:**

*NA, BOILING POINT OF ELECTROLYTE IS 212°F (100°C) (WATER)*

9.3 **Melting Point:**

*NA, MELTING POINT OF MISCH METAL ALLOY BEGINS AT 995 °F (MANGANESE)*

9.4 **Evaporation Rate:**

*< 1.0*

9.5 **Vapor Pressure:**

*11 mm Hg*

9.6 **Molecular Weight:**

*ND*

9.7 **Appearance & Color:**

*GREYISH, GREENISH COLOR (POSITIVE ELECTRODE)*

9.8 **Odor Threshold:**

*NA*

9.9 **Solubility:**

*NA, ELECTROLYTE FULLY MISCEBLE IN WATER.*

9.10 **pH**

*≥ 12 (ELECTROLYTE)*

9.11 **Viscosity:**

*NA*

9.12 **Other Information:**

*VAPOR DENSITY < 1.0; RELATIVE DENSITY < 1.3*

### 10. STABILITY & REACTIVITY

10.1 **Stability:**

*STABLE.*

10.2 **Hazardous Decomposition Products:**

*METAL HYDROXIDES (e.g., Ni(OH)\textsubscript{2}, Mn(OH)\textsubscript{2}, etc.) & METAL OXIDES (MnO, NiO, etc.) MAY FORM IF INVOLVED IN FIRE.*

10.3 **Hazardous Polymerization:**

*WILL NOT OCCUR.*

10.4 **Conditions to Avoid:**

*SHORT-CIRCUIT. EXTREMELY HIGH TEMPERATURES.*

10.5 **Incompatible Substances:**

*STRONG ACIDS, OXIDIZERS & ORGANIC PEROXIDES.*
11. TOXICOLOGICAL INFORMATION

11.1 Toxicity Data: NA

11.2 Acute Toxicity: NONE KNOWN.

11.3 Chronic Toxicity: NO CHRONIC HEALTH EFFECTS FOR THE ELECTROLYTE ARE KNOWN. NICKEL METAL & ITS COMPOUNDS ARE SUSPECTED CARCINOGENS; HOWEVER, THE ACUTE & CHRONIC EFFECTS OF NICKEL ALLOYS ARE NOT KNOWN.

11.4 Suspected Carcinogen: NICKEL (metal) IS A SUSPECTED CARCINOGEN, IARC GROUP 2B, NTP 97-2. THERE IS NO KNOWN CHRONIC HEALTH EFFECTS FOR NICKEL METAL ALLOYS.

11.5 Reproductive Toxicity:

Mutagenicity: THIS DEVICE IS NOT KNOWN TO HAVE ANY MUTAGENIC EFFECTS.

Embryotoxicity: THIS DEVICE IS NOT KNOWN TO HAVE ANY EMBRYOTOXICITY EFFECTS.

Teratogenicity: THIS DEVICE IS NOT KNOWN TO HAVE ANY TERATOGENIC EFFECTS.

11.6 Irritancy of Product: ELECTROLYTE MAY CAUSE SEVERE IRRITATION, REDNESS & SWELLING.

11.7 Biological Exposure Indices: ND

11.8 Physician Recommendations: ND

12. ECOLOGICAL INFORMATION

12.1 Environmental Stability:

12.2 Effects on Plants & Animals: NICKEL (metal) IS A SUSPECTED CARCINOGEN, IARC GROUP 2B, NTP 97-2. COBALT (metal) IS AN ANIMAL LUNG & MUSCULOSKELETAL CARCINOGEN, IARC GROUP 2B.

12.3 Effects on Aquatic Life: ND

13. DISPOSAL CONSIDERATIONS

13.1 Waste Disposal: DISPOSE OF IAW LOCAL, STATE & FEDERAL HAZARDOUS WASTE LAWS. ELECTROLYTE IS LISTED AS A RCRA CHARACTERISTIC HAZARDOUS WASTE, D002

13.2 Special Considerations: UNDAMAGED BATTERIES MAY BE RECYCLED THROUGH ANY NISSAN DEALER. CALL 1-800-331-4331.

14. TRANSPORTATION INFORMATION

14.1 49 CFR (GND):
UN2800, BATTERIES, WET, NON-SPILLABLE, 8, III

14.2 IATA (AIR):
UN2800, BATTERIES, WET, NON-SPILLABLE, 8, III

14.3 IMDG (GDN):
UN2800, BATTERIES, WET, NON-SPILLABLE, 8, III

14.4 TDGR (Canadian GND):
UN2800, BATTERIES, WET, NON-SPILLABLE, 8, III

14.5 ADR (EU):
UN2800, BATTERIES, WET, NON-SPILLABLE, 8, III, ADR

14.6 SCT (Mexico GND):
UN2800, ACUMULADORES ELECTRICOS NO DERRAMABLES DE ELECTROLITO LIQUIDO, 8, III

NON-SPIBBLE BATTERY
15. REGULATORY INFORMATION

15.1 SARA Reporting Requirements:
NICKEL HYDROXIDE; SODIUM HYDROXIDE; NICKEL (metal).

15.2 SARA Threshold Planning Quantity:
NONE.

15.3 TSCA Inventory Status:
THE COMPONENTS OF THIS PRODUCT ARE LISTED ON THE TSCA INVENTORY.

15.4 CERCLA Reportable Quantity (RQ):
NICKEL HYDROXIDE (10 #); SODIUM HYDROXIDE (1000 #); POTASSIUM HYDROXIDE (1000 #); NICKEL (100 #)

15.5 Other Federal Requirements:
NICKEL, COBALT, MANGANESE (metals); ALUMINUM (fume, dust) ARE SUBJECT TO SARA TITLE 313 (EPCRA)

15.6 Other Canadian Regulations:
THIS PRODUCT HAS BEEN CLASSIFIED ACCORDING TO THE HAZARD CRITERIA OF THE CPR AND THE MSDS CONTAINS ALL OF THE INFORMATION REQUIRED BY THE CPR.

15.7 State Regulatory Information:
NICKEL (AND CERTAIN NICKEL COMPOUNDS) & COBALT (METAL POWDER) ARE LISTED ON THE CALIFORNIA PROPOSITION 65 (TOXIC SUBSTANCES LISTS).

16. OTHER INFORMATION

16.1 Other Information:

16.2 Terms & Definitions:
PLEASE SEE LAST PAGE OF THIS MATERIAL SAFETY DATA SHEET

16.3 Disclaimer:
This Material Safety Data Sheet is offered pursuant to OSHA’s Hazard Communication Standard, 29 CFR §1910.1200. Other government regulations must be reviewed for applicability to this product. To the best of ShipMate’s or Nissan North America’s knowledge, the information contained herein is reliable and accurate as of this date; however, accuracy, suitability or completeness are not guaranteed and no warranties of any type, either expressed or implied, are provided. The information contained herein related only to the specific product(s). If this product(s) is combined with other materials, all component properties must be considered. Data may be changed from time to time. Be sure to consult the latest edition of this MSDS.

16.4 Prepared for:
NISSAN NORTH AMERICA, INC.
9009 CAROTHERS PARKWAY, B200
FRANKLIN, TN 37067
TEL: +1 (615) 725-7208
FAX: +1 (615) 725-7620
ATTN: GREGORY MCCLELLAN
E-MAIL: gregory.mcclellan@nissan-usa.com
WEB: http://www.nissanusa.com/

16.5 Prepared by:
SHIPMATE, INC.
18436 HAWTHORNE BLVD, SUITE 201
TORRANCE, CA 90504
TEL: +1 (310) 370-3600
FAX: +1 (310) 370-5700
ATTN: STEVEN CHARLES HUNT
E-MAIL: shipmate@shipmate.com
WEB: http://www.shipmate.com/
DEFINITIONS OF TERMS

A large number of abbreviations and acronyms appear on a MSDS. Some of these that are commonly used include the following:

CAS #: This is the Chemical Abstract Service Number that uniquely identifies each constituent.

EXPOSURE LIMITS IN AIR:

ACGIH – The American Conference on Governmental Industrial Hygienists, a professional association that establishes exposure limits.

TLV – Threshold Limit Value – an airborne concentration of a substance that represents conditions under which it is generally believed that all workers may be repeatedly exposed without adverse effect. The duration must be considered. The Comprehensive Time Weighted Average (CTWA), the 15-minute Short Term Exposure Limit, and the instantaneous Ceiling Level (C). Skin absorption effect must also be considered.

OSHA – U.S. Occupational Safety and Health Administration

PEL – Permissible Exposure Limit – This exposure value means exactly the same as TLV, except that it is enforceable by OSHA. The OSHA Permissible Exposure Limits are based in the 1989 PELs and the June 1993 Air Contaminants Rule (Federal Register: 58: 33538-33535 and 58: 40191). Both the current PELs and the vacated PELs are indicated. The phrase “Vacated 1989 PEL” is placed next to the PEL that was vacated by Court Order.

IDLH – Immediately Dangerous to Life and Health – This level represents a concentration from which one can escape within 30 minutes without suffering escape-preventing or permanent injury. The DFG – MAK is the Republic of Germany’s Maximum Exposure Level, similar to the U.S. PEL. NIOSH is the National Institute of Occupational Safety and Health, which is the research arm of the U.S. Occupational Safety and Health Administration (OSHA). NIOSH issues exposure guidelines called Recommended Exposure Limits (RELs). When no exposure guidelines are established; an entry of NE is made for reference.

HAZARD RATINGS:

THE HAZCOMM INFORMATION SYSTEM (THIS): This rating system was developed by the National Paint and Coating Association and has been adopted by industry to identify the degree of chemical hazards. Health Hazard: 0 (minimal acute or chronic exposure hazard); 1 (slight acute or chronic exposure hazard); 2 (moderate acute or significant chronic exposure hazard); 3 (severe acute exposure hazard; onetime overexposure can result in permanent injury and may be fatal); 4 (extreme acute exposure hazard; onetime overexposure can be fatal). Flammability hazard: 0 (minimal hazard); 1 (materials that require substantial pre-heating before burning); 2 (combustible liquids or solids; liquids with a flashpoint of 38°-93°C [100°-200°F]); 3 (Class 1B and 1C flammable liquids with flash points below 38°C [100°F]); 4 (Class 1A flammable liquids with flash points below 23°C [73°F] and boiling points below 38°C [100°F]). Reactivity Hazard: 0 (normally stable); 1 (materials that can become unstable at elevated temperatures or which can react slightly with water); 2 (materials that are unstable but do not detonate when ignited or which can react violently with water); 3 (materials that can detonate when ignited or which can react explosively with water); 4 (materials that can detonate at normal temperatures or pressures). PPE Rating B: Hand and eye protection is required for routine chemical use.

NATIONAL FIRE PROTECTION ASSOCIATION (NFPA): Health Hazard: 0 (material that on exposure under fire conditions would offer no hazard beyond that of ordinary combustible materials); 1 (materials that on exposure under fire conditions could cause irritation or minor residual injury); 2 (materials that on intense or continued exposure under fire conditions could cause temporary incapacitation or possible residual injury); 3 (materials that can on short exposure could cause serious temporary or residual injury); 4 (material that under very short exposure could cause death or major residual injury). Flammability Hazard and Reactivity Hazard: Refer to definitions for “The HazComm Information System.”

FLAMMABILITY LIMITS IN AIR:

Much of the information related to fire and explosion is derived from the National Fire Protection Association (NFPA). Flash Point – minimum temperature at which a liquid gives off sufficient vapors to form an ignitable mixture with air. Autoignition Temperature: The minimum temperature required to initiate combustion in air with no other source of ignition. LEL – the lowest percent of vapor in air, by volume, that will explode or ignite in the presence of an ignition source.UEL – the highest percent of vapor in air, by volume, that will explode or ignite in the presence of an ignition source.

TOXICOLOGICAL INFORMATION:

Human and Animal Toxicology: Possible health hazards as derived from human data, animal studies, or from the results of studies with similar compounds are presented. Definitions of some terms use dist his section are: LD50 – Lethal Dose (solids & liquids) which kills 50% of the exposed animals; LC50 – Lethal concentration (gases) which kills 50% of the exposed animals; ppm – concentration expressed in parts of material per million parts of air or water; mg/m³ – concentration expressed in weight of substance per volume of air; mg/kg – quantity of material, by weight, administered to a test subject, based on their body weight in kg. Other measures of toxicity include TDo – the lowest dose to cause a symptom and TCo (the lowest concentration to cause a symptom); TLm – the lowest dose or concentration to cause lethal or toxic effects. Cancer Information: The sources are: IARC – the International Agency for Research on Cancer; NTP – the National Toxicology Program; RTECS – the Registry of Toxic Effects of Chemical Substances, OSHA and CAL/OSHA. IARC and NTP rate chemicals on a scale of decreasing potential to cause human cancer with rankings from 1 to 4. Sub rankings (2A, 2B, etc.) are also used. Other Information: BEI – ACGIH Biological Exposure Indices, represent the levels of determinants which are most likely to be observed in specimens collected from a health worker who has been exposed to chemical to the same extent as a worker with inhalation exposure to the TLV. Ecological Information: EC is the effect concentration in water. BCF – Bioconcentration Factor, which is used to determine if a substance will concentrate in life forms that consume contaminated plant or animal matter. TLm – median threshold limit; Coefficient of Oil/Water Distribution is represented by log Kow or log Koc and is used to assess a substance’s behavior in the environment.

REGULATORY INFORMATION:

U.S. & CANADA: This section explains the impact of various laws and regulation of the material. EPA is the U.S. Environmental Protection Agency. WHMIS is the Canadian Workplace Hazardous Material Information System. DOT and TC are the U.S. Department of Transportation and Transport Canada, respectively. Superfund Amendments and Reauthorization Act (SARA); the Canadian Domestic/Non-Domestic Substance List (DSL/NDSL); the U.S. Toxic Substances Control Act (TSCA); Marine Pollutant status according to the DOT; the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA or Superfund); and various state regulations. This section also includes information on the precautionary warnings that appear on the material’s package label.

EUROPEAN & INTERNATIONAL: EC is the European Community, formerly known as the EEC, European Economic Community), EINECS: This is the European Inventory of Now-Existing Chemical Substances, AICS is the Australian Inventory of Chemical Substances, MITI is the Japanese Minister of International Trade and Industry, ECL is the Korean Existing Chemicals List, IMO is the International Maritime Organization and IATA is the International Air Transport Association. The ADR is the European Agreement Concerning the International Carriage of Dangerous Goods by Road and the RID are the International Regulations Concerning the Carriage of Dangerous Goods by Rail.