SAFETY DATA SHEET

Section 1: Chemical Product and Company Information

1.1 Product Identifier
Product Name: EnviroCide™

1.2 Relevant Identified Uses of the Substance or Mixture and Uses Advised Against
Product Use: Hard surface cleaner and disinfectant.

1.3 Details of the Supplier of the Substance or Mixture
Manufacturer: METREX™ RESEARCH
28210 Wick Rd
Romulus, MI 48174
U.S.A.

1.4 Emergency Telephone Number (Chemical Spills, Leaks, Fire, Exposure or Accident only):
CHEMTREC: 1-800-424-9300 (in the US) 1-703-527-3887 (Outside the US)

Information Phone Number: 1-800-841-1428 (Customer Service)
SDS Date Of Preparation/Revision: December 8, 2014

Section 2. Hazards Identification

2.1 Classification of the Substance or Mixture

Flammable Liquid Category 3
Eye Irritation Category 2 (2A US)
Specific Target Organ Toxicity Single Exposure Category 3 (Narcotic effects)

2.2 Label Elements

WARNING!

Hazard Phrases
H226 Flammable liquid and vapor.
H319 Causes serious eye irritation.
H336 May cause drowsiness or dizziness.

Precautionary Phrases
P210 Keep away from heat, sparks, open flames, hot surfaces – No smoking.
P233 Keep container tightly closed.
P241 Use explosion-proof electrical, ventilating and light equipment.
P243 Take precautionary measures against static discharge.

P261 Avoid breathing vapors.
P264 Wash thoroughly after handling.
P271 Use only outdoors or in a well-ventilated area.
P280 Wear eye protection.
P304+P340: IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing.
P312: Call a POISON CENTER or physician if you feel unwell.
P305+P351+P338: IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses if present and easy to do – continue rinsing.
P337+P313 If eye irritation persists get medical attention.
P370+P378 In case of fire: Use water spray or fog, alcohol-resistant foam, carbon dioxide or dry chemical to extinguish.
P403+P235 Store in a well-ventilated place. Keep cool.
P501 Dispose of contents and container in accordance with local and national regulations.

2.3 Other Hazards: None identified

Section 3. Composition/Information On Ingredients

Component	CAS No.	Amount	GHS Classification
Isopropanol	67-63-0	17.2%	Flam Liquid 2 (H226) Eye Irrit. 2 (H319) STOT SE 3 (H336)
Ethylene Glycol Monobutyl Ether (2-Butoxyethanol)	111-76-2	1-5%	Acute Tox 4 (H302), Acute Tox 3 (H311), Acute Tox. 3 (H331), Skin Irrit. 2 (H315), Eye Irrit. 2 (H319)
Diisobutylphenoxyethoxyethyldimethylbenzylammonium chloride	121-54-0	0.28%	Acute Tox 3 (H301) Skin Corr 1A (H314) Eye Dam 1 (H318) STOT SE 3 (H335) Aquatic Chronic 2 (H411)
Water	7732-18-5	70-80%	Not classified as hazardous

Section 4. First Aid Measures

4.1 Description of First Aid Measures

Inhalation: Move to fresh air if effects occur and seek medical attention if effects persist.

Skin Contact: Remove contaminated clothing. Rinse skin immediately with plenty of water for 15-20 minutes. Call a poison control center or doctor for further treatment advice.

Eye Contact: Hold eye open and rinse slowly and gently with water for 15-20 minutes. Remove contact lenses, if present, after the first 5 minutes, then continue rinsing. Call a poison control center or doctor for treatment advice.

Ingestion: If swallowed, get medical advice by calling a Poison Control Center or hospital emergency room. If advice is not available, take victim and product container to the nearest emergency treatment center or hospital. Do not attempt to give anything by mouth to an unconscious person.

4.2 Most Important symptoms and effects, both acute and delayed: Causes serious eye irritation. Inhalation of concentrated vapors may cause irritation of the eyes, nose and throat and dizziness and drowsiness.

4.3 Indication of any immediate medical attention and special treatment needed: Immediate medical attention is generally not required.

Section 5. Fire Fighting Measures

5.1 Extinguishing Media: Use water spray or fog, alcohol-resistant foam, carbon dioxide or dry chemical. Cool fire exposed containers with water.

5.2 Special Hazards Arising from the Substance or Mixture: Flammable liquid and vapor. May form explosive mixtures in air at temperatures at or above the flashpoint. Flammable vapors may collect in confined areas. Vapors are heavier than air and may travel along surfaces to remote ignition sources and flashback. Fire exposed containers may rupture explosively.

5.3 Advice for Fire-Fighters: Firefighters should wear positive pressure self-contained breathing apparatus and full protective clothing for fires in areas where chemicals are used or stored.

Section 6: Accidental Release Measures

6.1 Personal Precautions, Protective Equipment and Emergency Procedures: Wear appropriate protective clothing and equipment.

6.2 Environmental Precautions: Avoid release to the environment

6.3 Methods and Material for Containment and Cleaning Up: Eliminate all ignition sources. Ventilate area. Use explosion-proof equipment if large amounts are released. Stop leak if it is safe to do so and move containers from the spill area. Collect material with an inert absorbent material and place in appropriate, labeled container for disposal.

Section 7. Handling and Storage

7.1 Precautions for Safe Handling: Do not get in eyes or on clothing. Wear appropriate eye protection when handling. Wash thoroughly with soap and water after handling and before eating, drinking, chewing gum, using tobacco or using the toilet. Remove and wash contaminated clothing before reuse.

Flammable liquid and vapor. Keep away from heat, sparks, open flames and all other sources of ignition. Do not smoke in storage or use areas. Keep containers closed when not in use. Do not reuse empty containers.

7.2 Conditions for Safe Storage, Including any Incompatibilities: Store in a cool, well-ventilated area away from heat, oxidizers and all sources of ignition. Do not contaminate water, food or feed by storage.

Empty containers retain product residues and may be hazardous. Do not flame cut, drill, weld, etc. on or near empty containers, even empty.

7.3 **Specific end use(s):** Hard surface cleaner and disinfectant.

Section 8. Exposure Controls / Personal Protection

8.1 Control Parameters:

Chemical	Korean Exposure Limit
Isopropanol	200 ppm 8 hr Exposure Limit 400 ppm Short Term Exposure
Ethylene Glycol Monobutyl Ether (2-Butoxyethanol)	20 ppm 8 hr Exposure Limit
Diisobutylphenoxyethoxyethyldimethyl benzylammonium chloride	None Established
Water	None Established

8.2 Exposure Controls:

Recommended Monitoring Procedures: Collection on charcoal and analysis by gas chromatography.

Appropriate Engineering Controls: General ventilation should be adequate for normal use. For operations where the exposure limits may be exceeded, mechanical ventilation such as local exhaust may be needed to minimize exposure. Use explosion proof electrical equipment and wiring where required.

Personal Protective Measurers

Respiratory Protection: None under normal use conditions with adequate ventilation. For operations where the occupational exposure limits are exceeded, an approved respirator with an organic vapor cartridge or supplied air respirator is recommended. Equipment selection depends on contaminant type and concentration. Select in accordance with applicable regulations and good industrial hygiene practice. For firefighting, use self-contained breathing apparatus.

Eye Protection: Splash proof goggles, face shield, or safety glasses are recommended to prevent eye contact.

Skin Protection: Impervious gloves such as butyl rubber or nitrile are recommended for operations which may result in prolonged or repeated skin contact.

Other protection: Wear protective clothing if needed to avoid prolonged/ repeated skin contact. Suitable washing and eye flushing facilities should be available in the work area. Contaminated clothing should be removed and laundered before re-use.

Section 9. Physical and Chemical Properties

9.1 Information on basic Physical and Chemical Properties:

Appearance	Clear liquid.	Vapor Pressure	43.3 mmHg @ 20°C (isopropanol)
Odor	Alcohol	Vapor Density:	2.1 (isopropanol)
Odor Threshold	0.001 ppm (ethylene glycol monobutyl ether)	Relative Density /Specific Gravity:	0.972
pH	11.0-12.49	Solubility in Water:	Complete
Melting/Freezing Point	Not determined	Partition Coefficient (n-octanol/water	Not determined
Boiling Point:	Not determined	Auto-ignition Temperature	Not determined
Flash Point:	28.3°C (83°F)	Decomposition Temperature	Not determined
Evaporation Rate	Not determined	Viscosity	Not determined
Flammability (solid/gas)	Not applicable	Explosive Properties	Vapors may explode if confined.
Flammable/ Explosive Limits	LEL: 2% UEL: 12.7%	Oxidizing Properties	None
Percent Volatile	>95%		

Section 10. Stability and Reactivity

10.1 Reactivity: Not reactive at ambient temperatures.
10.2 Chemical Stability: Stable
10.3 Possibility of Hazardous Reactions: Not reactive.
10.4 Conditions to Avoid: Heat, sparks, flames and all other sources of ignition.
10.5 Incompatible Materials: Strong oxidizing agents, acids and strong reducing agents.
10.6 Hazardous Decomposition Products: Thermal decomposition will produce carbon monoxide, carbon dioxide, nitrogen oxides, amines, chlorine and hydrogen chloride.

11. Toxicological Information

11.1 Information on Toxicological Effects:

Potential Health Effects:

Inhalation: May cause irritation of the nose, throat and upper respiratory tract. High vapor concentrations may produce nausea, vomiting, headache, dizziness, drowsiness, weakness, fatigue, narcosis and possible unconsciousness.

Skin Contact: Prolonged or repeated exposure may cause mild irritation.

Eye Contact: May cause irritation with tearing, redness and pain.

Ingestion: Ingestion may cause gastrointestinal disturbances and central nervous system effects such as headache, dizziness, drowsiness and nausea.

Acute Toxicity Values:

Product LD50 Oral Rat >5000 mg/kg
LD50 Dermal Rabbit >2000 mg/kg
LC50 inhalation LC50 rat >2.08 mg/L

Skin corrosion/irritation: Product: Non-irritating in a primary irritation study with rabbits. No signs of toxicity or irritation were observed in a dermal toxicity study in rabbits.

Eye damage/ irritation: Product: Moderately irritating in an eye irritation study with rabbits. Effects reversed in 7 days.

Skin Sensitization: Product: Negative in a skin sensitization study with guinea pigs.

Respiratory Sensitization: No data available on the product or components. Not expected to cause respiratory sensitization.

Germ Cell Mutagenicity: Ethylene Glycol Monobutyl Ether: Tested negative in the AMES test, in an in vitro mammalian chromosome aberration assay and in an in vivo mammalian erythrocyte micronucleus test. Isopropanol: Tested negative in the AMES test, in an In vitro mammalian cell gene mutation test and in an in vivo mammalian erythrocyte micronucleus test. Diisobutylphenoxyethoxyethyldimethylbenzylammonium chloride: Negative in AMES test with or without metabolic activation.

Carcinogenicity: None of the components is listed as a carcinogen or potential carcinogen by IARC, NTP, ACGIH, or OSHA. Ethylene glycol monobutyl ether: The US National Toxicology Program (NTP) conducted a 2-year inhalation chronic toxicity and carcinogenicity study with ethylene glycol monobutyl ether in rats and mice. A significant increase in the incidence of liver hemangiosarcomas was seen in male mice and forestomach tumors in female mice. Based on the mode of action data available, there was no significant hazard for human carcinogenicity.

Developmental / Reproductive Toxicity: Ethylene glycol monobutyl ether: In a14 week reproductive study, mice were orally administered 720, 1340 and 2050 mg/kg/day. Effects were seen on fertility only at doses which were severely toxic to the animals (1340 and 2050 mg/kg). A NOAEL -720 mg/kg. Diisobutylphenoxyethoxyethyldimethyl benzylammonium chloride: In a teratology study, rats were given up to 35.6 mg/kg/day from day 6-15 of gestation. Adverse maternal effects were seen at the highest dose.

Specific Target Organ Toxicity (Single Exposure): In an acute toxicity study with rat, MetriGuard has been shown to cause respiratory irritation.

Specific Target Organ Toxicity (Repeated Exposure): Ethylene Glycol Monobutyl Ether: Ethylene Glycol Monobutyl Ether: was administered dermally to male and female rabbits at doses up to 150mg/kg/day for 90 days. The maximum dose tested was the maximum that could be tolerated. No clinical, haematological, clinical chemistry or pathological changes were observed that could be attributed to treatment. NOEAL 150 mg/kg. Isopropanol: In a 104 week inhalation study, rats were exposed to 500, 2500, 5000 ppm for 6hr/day. There no adverse exposure related effects seen at any dose. NOAEL of 5000 ppm.

Section 12. Ecological Information

12.1 Toxicity:
Isopropanol: LC50 fathead minnows 11,130 mg/L/48 hr; LC50 brown shrimp 1400 mg/L/48 hr Diisobutylphenoxyethoxyethyldimethylbenzylammonium chloride**:** LC50 pimephales promelas 1.6 mg/L/96 hr, LC50 lepomis macrochirus 1.4 mg/L/96 hr.

12.2 Persistence and degradability: Isopropanol and 2-butoxyethanol are readily biodegradable in screening tests. Diisobutylphenoxyethoxyethyldimethylbenzylammonium chloride is not readily biodegradable.

12.3 Bioaccumulative Potential: Isopropanol has an estimated BCF of 3 suggesting that the potential for bioaccumulation is low.

12.4 Mobility in Soil: Isopropanol is expected to have very high mobility in soil.

12.5 Results of PVT and vPvB assessment: None required.

12.6 Other Adverse Effects: None known.

13. Disposal Considerations

13.1 Waste Treatment Methods:

Do not contaminate water, food, or feed by storage and disposal.
Pesticide Disposal: Unused product or wastes resulting from the use of this product may be disposed of according to applicable Federal, State, or local procedures.
Container Disposal: Nonrefillable container. Do not reuse or refill this container. Offer for recycling, if available.

Section 14. Transport Information

	14.1 UN Number	14.2 UN Proper Shipping Name	14.3 Hazard Class(s)	14.4 Packing Group	14.5 Environmental Hazards
US DOT	None	Not Regulated per alcohol exception (49CFR 173.150(e))	None	None	None
EU ADR/RID	UN1987	Alcohols, n.o.s. (Isopropanol)	3	III	None
IMDG	UN1987	Alcohols, n.o.s. (Isopropanol)	3	III	None
IATA/ICAO	UN1987	Alcohols, n.o.s. (Isopropanol)	3	III	None

DOT MARINE POLLUTANTS: This product does not contain Marine Pollutants as defined in 49 CFR 171.8.

14.6 Special Precautions for User: None identified

14.7 Transport in Bulk According to Annex III MARPOL 73/78 and the IBC Code: None known.

Section 15. Regulatory Information

15.1 Safety, Health and Environmental Regulations/Legislation Specific for the Substance or Mixture

US Regulations

EPA SARA 311/312 Hazard Classification: Fire Hazard, Acute Health, Chronic Health

EPA SARA 313: This Product Contains the Following Chemicals Subject to Annual Release Reporting Requirements Under SARA Title III, Section 313 (40 CFR 372):

Ethylene Glycol Monobutyl Ether (Glycol Ether) 1-5%

Protection Of Stratospheric Ozone: This product is not known to contain or to have been manufactured with ozone depleting substances as defined in 40 CFR Part 82, Appendix A to Subpart A.

CERCLA SECTION 103: This product is not subject to CERCLA reporting requirements; however, many states have more stringent release reporting requirements. Report spills required under federal, state and local regulations.

US EPA Registered Pesticide: This chemical is a pesticide product registered by the United States Environmental Protection Agency and is subject to certain labeling requirements under federal pesticide law. These requirements differ from the classification criteria and hazard information required for safety data sheets (SDS), and for workplace labels of non-pesticide chemicals. The hazard information required on the pesticide label is reproduced below. The pesticide label also includes other important information, including directions for use.

CAUTION!
Harmful if absorbed through the skin.
Causes moderate eye irritation.
Keep out of reach of children.

California Prop 65: This product may contain a chemical known to the State of California to cause cancer or birth defects or other reproductive harm.

Korean Regulations:

Industrial Safety and Health Act: Isopropanol and ethylene glycol monobutyl ether are regulated under the Korean Industrial Safety and Health Act.

Toxic Chemical Control Act: None of the components are regulated or are below the threshold for reporting under the Toxic Chemical Control Act.

Dangerous Material Safety Control Act: Isopropanol is regulated under the Dangerous Material Safety Control Act as a Class 4 Alcohol. Ethylene glycol monobutyl ether is regulated under the Dangerous Material Safety Control Act as a Class 4 No. 2 Petroleum.

Wastes Management Act: Not sold as a designated waste.

International Inventories

US EPA TSCA Inventory: All of the components of this product are listed on the Toxic Substances Control Act (TSCA) Chemical Substances Inventory or exempt.

Canadian Environmental Protection Act: All of the components in this product are listed on the Domestic Substances List (DSL) or exempt.

European Union: All the components in this product are listed on the EINECS inventory or exempt.

Australia: All of the components in this product are listed on the Australian Inventory of Chemical Substances (AICS) or exempt.

China: All of the components in this product are listed on the Inventory of Existing Chemical Substances in China (IECSC) or exempt.

Japan: All of the components in this product are listed on the Japanese Existing and New Chemical Substances (ENCS) inventory or exempt.

Korea: All of the components in this product are listed on the Korean Existing Chemicals List (KECL) or exempt.

Philippines: All of the components of this product are listed on the Philippines Inventory of Chemicals and Chemical Substances (PICCS) or exempt.

16. Other Information

NFPA Rating: Fire: 3 Health: 2 Instability: 0

GHS Classification for Reference (See Sections 2 and 3):
Flam. Liq. 2 Flammable Liquid Category 2
Eye Dam 1 Eye Damage Category 1
Eye Irrit. 2 Eye Irritation Category 2
Skin Corr 1A Skin Corrosion Category 1A
Skin Irrit. 2 Skin Irritation Category 2
Acute Tox 3 Acute Toxicity Category 3
Acute Tox 4 Acute Toxicity Category 4
STOT SE 3 Specific Target Organ Toxicity Single Exposure Category 3
Aquatic Chronic 2 Aquatic Chronic Toxicity Category 2

H226 Flammable liquid and vapor.
H301 Toxic if swallowed.
H302 Harmful if swallowed.
H311 Toxic in contact with skin.
H314 Causes severe skin burns and eye damage.
H315 Causes skin irritation.
H318 Causes serious eye damage.
H319 Causes serious eye irritation.
H331 Toxic if inhaled.
H335 May cause respiratory irritation.

H336 May cause drowsiness or dizziness.
H411 Toxic to aquatic life with long lasting effects.

Effective Date: 12/8/2014

Supersedes Date: 7/9/2012

Revision Summary: New Format- GHS

The information and recommendations set forth herein are taken from sources believed to be accurate as of the date of preparation, however, METREX™ RESEARCH makes no warranty with respect to the accuracy or suitability of the recommendations, and assumes no liability to any use thereof.