



Esma-Zyme E1204

Enzymatic Ultrasonic Detergent (Concentrate)

**** SPECIALLY FORMULATED FOR ULTRASONIC WASHERS. ESMA-ZYME IS A LOW FOAMING, POWERFUL, CONCENTRATED CLEANER.**

DESCRIPTION: Esma-Zyme E1204 is a near-neutral pH blend of highly soluble synthetic detergents, water conditioners, and specialty enzymes balanced for maximum soil penetration and dispersion. When used in our ultrasonic systems, Esma-Zyme effectively cleans away blood, tissue, mucus and other protein-rich body fluids by attacking and disintegrating it from delicate instruments leaving them clean and shiny.

Esma-Zyme is suitable for use on all metals and rubber, including polished aluminum, as well as, zinc, stainless steel, copper, brass, and all ferrous metals. Esma-Zyme offers convenience and economy as a concentrate and is low foaming, free-rinsing, non-spotting, and safe to use due to its low alkalinity. Esma-Zyme eliminates the dangers of galvanic attack between dissimilar metals when processed in the same soak or ultrasonic tank. Esma-Zyme does not contain dyes, perfumes, or preservatives for complete rinsing of instruments and equipment.

PROPERTIES:

Appearance	Clear/Hazy Liquid
pH (100%)	7.5 - 8.5
Odor	Mild
Foaming	Low
Rinsing	Complete
Hard Water Stability	Up to 500 ppm at CaCo ₃ 8.76 (Gravity: 1.05)
Lbs./Gal	8.76 (Gravity: 1.05)

DIRECTIONS:

For use in ultrasonic tanks dilute to 5% solution (6 oz. per gallon)

For use in automatic ultrasonic wash machines dilute 1:128 (1 oz. per gallon)

(* If using the Esma E789 machine, use 3 – 6 oz. per wash cycle.

For difficult soils use 6 – 9 oz. per cycle.)

PRECAUTIONS:

May cause irritation to the eyes upon contact. Refer to MSDS. ****AVOID EYE CONTACT**** For use in ultrasonic tanks dilute to 5% solution (6 oz. per gallon)

For use in automatic ultrasonic wash machines dilute 1:128 (1 oz. per gallon)

(* If using the Esma E789 machine, use 3 – 6 oz. per wash cycle.

For difficult soils use 6 – 9 oz. per cycle.)

Temperature: Ambient - 200°F



ESMA Incorporated
450 Taft Drive
South Holland, IL 60473
800-276-2466

MATERIAL SAFETY DATA SHEET

Section 1- Product Identification and Use

Product Name: Esma Zyme

Product Identification Number: E1204

Product Use: Detergent Solution

Manufacturer's Name: Esma, Inc.

450 W. Taft Drive

South Holland, IL 60473

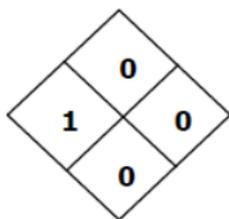
1-800-246-2466

Emergency Telephone Numbers— US/North America: Chemtrec 800-262-8200 24 hrs everyday

International: 800-276-2466

Section 2 - Hazardous Identification

Form : Liquid Color : Clear/Slight Green



NFPA/HMIS Rating:

Health = 1 = slight

Fire, Reactivity, and Special 0 = minimal

Potential Health Effects

Eye Contact: May cause severe damage and even blindness

Skin Contact: No adverse effects expected under typical use conditions. Prolonged exposure may cause dryness. Chemically sensitive individuals may experience mild irritation.

Ingestion: Can result in damage to mucous membranes and deep tissues.

Inhalation: No adverse effects expected under typical use conditions. Adequate ventilation should be present for prolonged usage in small enclosed areas which can cause irritation and damage to nasal/respiratory passages

Section 3 - Hazardous Ingredients

Common name: Dipropylene glycol monomethyl ether 5-10 % by weight
C A S #: 34590-94-8

Common name: Sodium Tripolyphosphate 1-5 % by weight
C A S #: 7758-29-4-1

Common name: Propylene Glycol 1-5 % by weight
C A S #: 5064-31-3

Unlisted components are considered non-hazardous as per 29CFR1910.1200g2C. See section 15 for specific state right-to-know information if applicable.

Section 4 - First Aid Measures

Eye Contact: Immediately flush contacted area repeatedly with water for at least 15 minutes, holding eyelids open. Contact a physician for treatment.

Skin Contact: Immediately flush contacted area repeatedly with water for at least 15 minutes. If irritation persists, contact a physician for treatment. Clean contaminated clothing before reuse.

Inhalation: Inhalation is not an expected route of exposure. If respiratory irritation or distress occurs, remove victim to fresh air. If irritation persists, seek medical attention.

Ingestion: Never give anything by mouth to an unconscious person. If swallowed, do not induce vomiting. Give 1-2 glasses of water to drink, if conscious and alert.

Notes to physician : No Data

Section 5 - Firefighting Measures

Flammability—No

Flash Point—N/A

Explosive Limit (% by Volume)- N/A

Auto Ignition Temp.—No Data

Hazardous Combustion Products (may form)

Ammonia, Carbon Dioxide, Carbon Monoxide, Nitrogen oxides, various Hydrocarbons

Explosion Data—Sensitivity to Impact—N/A

Sensitivity to Static Discharge—N/A

Section 6 - Accidental Release Measures

Personal Precautions: See section 8 – personal protection.

Environmental Precautions: Do not allow into open waterways and ground water systems.

Method for Clean Up: Dilute with water and rinse into sanitary sewer system or soak up with inert absorbent material.

Section 7 - Handling And Storage

Handling: Avoid breathing vapors and mists. Avoid direct or prolonged contact with skin and eyes. In cold weather, liquids may stratify and freeze. This does not damage the product. If freezing occurs, thaw and remix before using. Frozen material may be thawed in a warm room. Avoid localized overheating. Vent drums while heating. Mix thoroughly to assure homogeneity. Handle with care. Wash thoroughly after handling.

Storage Requirements: Keep container closed. Store in an area that is dry and well-ventilated, away from incompatible materials (see section 10). For Industrial and commercial use only!

Section 8 - Exposure Controls/Personal Protection

Hazardous Ingredient	ACGIH TLV	
	(mg/m ³) TWA	(mg/m ³) STEL
Dipropylene glycol monomethyl ether	606	909 (skin)
Sodium Tripolyphosphate	-	-
Propylene Glycol	-	-

Engineering measures :

Ventilation / Local Exhaust : General room ventilation.

Ventilation / Mechanical Recommendations: None required.

Personal protective equipment :

Respiratory Protection: Not required for properly ventilated areas.

Skin Protection: Vinyl or rubber protective gloves.

Eye Protection: Goggles or face shield.

Other Protective Equipment: Vinyl apron (optional).

Section 9 - Physical And Chemical Properties

Appearance / Odor: Clear, colorless to straw yellow liquid, odor mild solvent.

Water Solubility: complete

pH (1%): 7 - 8

Specific Gravity: 1.04

Boiling Point (°F) : 212+

Evaporation Rate(water=1): N/A

% Volatile: N/A

Vapor Density(air=1) : N/A

Vapor Pressure(mmHg): N/A

Flash Point : None

Flash Point Method Used: N/A

Section 10 - Stability And Reactivity

Stability: Stable
Hazardous polymerization: Will not occur
Conditions to avoid: Elevated temperatures; enclosed areas; flame and spark sources
Incompatible materials: Oxidizers, strong acids and alkalis, halogenated solvents
Hazardous decomposition products: Various carbon and sulfur oxides

SECTION 11 - TOXICOLOGY

Potential Health Hazards (as mild alkaline or detergent blend) :

Inhalation: Inhalation of mists or dusts may cause irritation to respiratory tract. Symptoms From excessive inhalation or of concentrated product may include gasping or coughing and difficulty breathing. Excessive contact may cause damage to the nasal septum. Skin Contact: May cause mild irritation. Concentrated or prolonged contact may cause irritation with redness and blistering.
Eye Contact: May cause mild irritation. Concentrated or prolonged contact may cause Conjunctival edema and corneal destruction.
Ingestion: Swallowing may produce gastrointestinal upset. Symptoms from ingestion of large doses may include severe abdominal pain, vomiting, and diarrhea.

Toxicological Data: Toxicological studies were not performed on the blended product, although it is considered to be a severe eye irritant, and moderately irritating to the skin.

Toxicological Data (as Dipropylene glycol monomethyl ether) :

Eye : May cause slight temporary eye irritation. Corneal injury is unlikely.
Skin : LD50 (rabbits) = > 20 ml/kg. Prolonged skin exposure may cause drowsiness.
Ingestion : LD50 (rats) = 5.4 ml/kg. Swallowing small amounts is not likely to cause injury.
Inhalation : Excessive exposure may result in anesthetic or narcotic effects.

Toxicological Data (as Sodium Tripolyphosphate) :

Acute Dermal LD50 : Not available
Oral LD50 (rat) = 4100 mg/kg
Inhalation LC50 : Not available

Toxicological Data (as Propylene Glycol):

Skin : LD50 (rabbits) = > 10,000 mg/kg
Ingestion : oral LD50 (rats) = 20,000 - 34,000 mg/kg

Carcinogenicity: This product does not contain any materials considered to be carcinogenic according to OSHA, NTP, IARC, or ACGIH

Section 12 - Ecological Information

Exotoxicological Information (as Dipropylene glycol monomethyl ether):

MOVEMENT & PARTITIONING : Bioconcentration potential is low (BCF < 100 or Log Pow < 3). Log octanol/water partition coefficient (Log Pow) is estimated using the Pomona-Med Chem structural fragment method to be -0.064.
DEGRADATION & PERSISTENCE : Material is readily biodegradable. Reaches more than 70% mineralization in OECD test(s) for inherent biodegradability. Biodegradation under aerobic static laboratory conditions is moderate (BOD20 or BOD28/ThOD between 10 and 40%). Biodegradation rate may increase in soil and/or water with acclimation.

20-Day biochemical oxygen demand (BOD20) is 0.65 p/p.

Degradation is expected in the atmospheric environment within minutes to hours.

Biodegradation reached in CO2 Evolution Test (Modified Sturm Test, OECD Test No. 301B) after 28 days; 34%.

Biodegradation reached in Modified OECD Screening Test (OECD Test No. 301E) after 28 days : 72.9%

ECOTOXICITY : Material is practically non-toxic to aquatic organisms on an acute basis (LC50 >

100 mg/L in most sensitive species).

Acute LC50 (emerald shiner) > 150mg/L\

Acute LC50 (fathead minnow) > 10000 mg/L

Acute LC50 (water flea) = 1919 mg/L

Acute LC50 (brown shrimp) > 1000 mg/L

The 21 day no-observed effect concentration level (NOEC) (reproduction) for water flea is > 0.5 mg/L. Growth inhibition threshold in bacteria is 4168 mg/L.

Ecological Information (as Sodium Tripolyphosphate) : No data.

Environmental Fate (as Propylene Glycol) :

Movement and Partitioning : Bioconcentration potential is low (BCF < 100 or Log Pow < 3). Log octanol/water partition coefficient (log Pow) = -0.92. Henry's Law Constant (H) = 1.2E-8 atm. m³/ mole.

Degradation and Persistence : Biodegradation under aerobic static laboratory conditions is high (BOD20 or BOD28/ThOD > 40%). Biodegradation is expected to be achievable in a secondary wastewater treatment plant. 5-day biochemical oxygen demand (BOD20) = 1.16 p/p. 20-day biochemical oxygen demand (BOD20) = 1.45 p/p. Theoretical oxygen demand (ThOD) is calculated to be 1.68 p/p. Inhibitory concentration (IC50) in OCED

Activated Sludge Respiration Inhibition Test

(OCED Test No. 209) > 1gm/L. Degradation is expected in the atmospheric environment within minutes to hours.

Ecotoxicity : Material is practically non-toxic to aquatic organisms on an acute basis (LC50 > 100 mg/L in most sensitive species):

Acute LC50 (fathead minnow) = 46500 - 54900 mg/L.

Acute LC50 (guppy) = > 10000 mg/L

Acute LC50 (water flea) = 4850 - 34400 mg/L

Acute LC50 (rainbow trout) = 44 mg/L

Chemical Fate Information: Readily Biodegradable per OECD 301D, Closed Bottle Test

Section 13 - Disposal Considerations

Waste Disposal Method: Recycle, recovery and reuse of materials, where permitted, is encouraged as an alternate to disposal as a waste. Hazardous waste classification under federal regulations (40 CFR Part 261 et seq) is dependent upon whether a material is a RCRA listed hazardous waste or has any of the four RCRA hazardous waste characteristics. Refer to 40 CFR Part 261.33 to determine if a given material to be disposed of is a RCRA listed hazardous waste. RCRA Hazardous Waste Characteristics:

There are four characteristics defined in 40 CFR Section 261.21-61.24: Ignitability, Corrosivity, Reactivity, and Toxicity. To determine Ignitability, see Section 9 of this SDS (flash point). For Corrosivity, see Sections 9 and 14 (pH and DOT corrosivity). For Reactivity, see Section 10 (incompatible materials). For Toxicity, see Section 2 (composition). Federal regulations are subject to change. State and local requirements, which may differ from or be more stringent than the federal regulations, may also apply to the classification of the material if it is to be disposed.

Is the unused product a RCRA hazardous waste (40CFR261.33) if discarded? No

If yes, the RCRA ID number is : N/A

Section 14 - Transportation Information

D O T Shipping name: Compound, cleaning, liquid, NOIBN

Hazard Class: NOIBN

Label(s) required: None

Section 15 - Regulatory Information

TSCA (Toxic Substances Control Act) Status - TSCA (United States) The intentional ingredients of this product are listed.

CERCLA RQ - 40 CFR 302.4(a): This product contains Glycol Ether(s) which, although included as a broad category on the CERCLA hazardous substance list, has not been assigned a reportable quantity.

SARA 302 Components - 40 CFR 355 Appendix A: none

SARA 3111312 Classification - 40 CFR 370.2:

Immediate health hazard, delayed health hazard: (as Diethylene glycol n-butyl ether) acute, chronic (as Triethanolamine)

Section 16 - Other Information

The HMIS Rating : HEALTH: 1 FLAMMABILITY: 0 REACTIVITY: 0 SPECIAL: 0

NFPA hazard degree designation 704: 4 = extreme, 3 = high, 2 = moderate, 1 = slight, 0 = none.

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