



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 CaCo3 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

Product Name: Esma Zyme

Date Issued: January 24, 2004

SECTION 1 : PRODUCT AND COMPANY IDENTIFICATION

Product Name: Esma Zyme E1204

Formula : Multi-component mixture

Chemical Synonym : c282E

Chemical Family: Alkaline detergent

Supplier: Esma Inc. 450 Taft Dr. South Holland, IL 60473

Emergency Telephone : (708) 331-1855

SECTION 2 : COMPOSITION I INFORMATION ON INGREDIENTS

Hazardous Ingredient(s)	CAS S	% (W/W)	ACGIH TLV (mg/m3)	
			TWA	STEL
Sodium Tripolyphosphate	7758-29-4	< 5.0	-	-
Dipropylene glycol monomethyl ether	34590-94-8	> 5.0	606	909 (skin)
4-isopropenyli- I -methylcyclohexene	5989-27-5	< 2.0	-	-
Propylene Glycol	57-55-6	< 5.0	-	-

Unlisted components are considered non-hazardous as per 29CFRI 910.1200g2C. See section 15 for specific state right-to-know information if applicable.

SECTION 3: HAZARD IDENTIFICATION

Emergency Overview : Solutions and powders are severe eye irritants, and prolonged or repeated contact may cause skin irritation. Dusts and mists are irritating to the skin, mucous membranes, and upper respiratory tract. Read the entire MSDS for a more thorough evaluation of the hazards.

POTENTIAL HEALTH EFFECTS: Acute: May cause severe irritation to the eyes. Dusts and mists are irritating to the skin, mucous membranes, and upper respiratory tract.

Chronic: May cause irritation of the skin, respiratory airways, mucous membranes and eyes.

Inhalation: No test data found for this product.

Skin Contact: No test data found for this product.

Eye Contact: No test data found for this product. **Ingestion:** No test data found for this product.

SECTION 4: FIRST AID MEASURES

General:

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.

Inhalation: Move 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 large quantities of water or milk, then drink dilute vinegar, lemon juice, orange juice, or soda if conscious.

SECTION 5: FIRE FIGHTING MEASURES

Flash Point : None **Method Used:** N/A **Flammable Limits:** LEL =N/A UEL =N/A

Extinguishing Media: None required.

Fire Fighting Procedures: Use caution when fighting any fire. Adequate respiratory protection is essential.

Unusual Fire and Explosion Hazards: None known.

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SECTION 6 : ACCIDENTAL RELEASE MEASURES

Steps to be taken in case material is released or spilled:

Small Spill. Absorb with suitable absorbent such as sand or vermiculite.

Large Spill: Stop leak at source and contain spill with dike made of inert material such as sand or diatomaceous earth. Pump material to suitable container for possible reuse.

Solid spill: Sweep up and return to container.

Deactivating Chemicals: Mild acids such as dilute phosphoric will bring the pH to a neutral range.

SECTION 7: HANDLING AND STORAGE

Handling: Handle with care. Wash thoroughly after handling. Launder contaminated clothing before reuse.

Storage Requirements: Keep container closed. For industrial and commercial use only!

SECTION 8 : EXPOSURE CONTROLS I PERSONAL PROTECTION

Respiratory Protection: None required.

Ventilation / Local Exhaust : General room ventilation.

Ventilation / Mechanical Recommendations: None required.

Skin Protection: Vinyl or rubber protective gloves.

Eye Protection: Goggles or face shield.

Other Protective Equipment: Vinyl apron (optional).

Exposure Guidelines: See section 2 for ACGIH recommendations for each hazardous ingredient.

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

Appearance/Odor: Clear liquid, odor mild.

Water Solubility: Complete

Specific Gravity: 1.05

% volatile: N/A

Boiling Point ('F): 212+

Vapor Density(air=1): N/A

pH (1 00%): < 10.0

Evaporation Rate(water=1): 1

Vapor Pressure(mmHg): N/A

SECTION 10 : STABILITY AND REACTIVITY

Hazardous Decomposition Products. None.

Chemical Stability: Stable.

Conditions to Avoid: Splashing solutions, prolonged skin contact.

Incompatibility with other Substances: Acids

Hazardous Polymerization: Will not occur.

SECTION 11 : TOXICOLOGICAL INFORMATION

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 Sodium Tripolyphosphate

Acute Dermal LD50 : Not available

Oral LD50 (rat) = 41 00 mg/kg

Inhalation LC50: Not available

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Product Name : *Esma Zyme*

Date Issued : *January 24, 2004*

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 4-isopropenyl-1-methylcyclohexene): 4-isopropenyl-1-methylcyclohexene is listed by FEMA and FDA as Generally Recognized as Safe (GRAS). Reported animal effects : None under conditions of expected use. RIFM lists acute oral LD50 (rat) > 5g / kg; acute dermal LD(50) > 5 g/kg.

Toxicological Data (as Propylene Glycol):

Skin : LD50 (rabbits) = > 10,000 mg/kg

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

Carcinogenicity: The ingredients of this product are not classified as carcinogenic by IARC, OSHA, or NTP. 4-isopropenyl-1-methylcyclohexene has been shown by NTP (National Toxicology Program) to cause kidney tumors in male rats. The relevance of this finding in humans is uncertain.

SECTION 12: ECOLOGICAL INFORMATION

Exotoxicological Information: No data found for this product.

Environmental Effects: No data found for this product.

Persistence and Degradation- No data found for this product,

Ecological Information (as Sodium Tripolyphosphate) : No data.

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 C02 Evolution Test (Modified Sturm Test, OECD Test No. 301 B) after 28 days; 34%.

Biodegradation reached in Modified OECD Screening Test (OECD Test No. 301 E) 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 4-isopropenyl- 1 -methylcyclohexene): No data.

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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 (BOD₅) = 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) > 1 gm/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

SECTION 13 . DISPOSAL CONSIDERATIONS

Waste Disposal Method: Neutralize spent solutions to an acceptable pH level. Allow oils to separate and decant if possible. Detergent portion is 100% biodegradable.

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

Transportation Emergency Telephone Number: 24 hour number : (607)737-6737

DOT Proper Shipping Name: Compound, cleaning, liquid, NOIBN

DOT Hazard Class / Product Identification Number / Packing Group / DOT Label:
NOIBN

SECTION 15: REGULATORY INFORMATION

US FEDERAL REGULATIONS :

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

CERCLA RQ - 40 CFR 302.4(a) : none

SARA 302 Components - 40 CFR 355 Appendix A : none

SARA 311/312 Classification - 40 CFR 370.2 :

(as Dipropylene glycol monomethyl ether) : immediate health hazard, fire hazard

(as 4-isopropenyl-1-methylcyclohexene): Immediate, fire

SARA 313 Components - 40 CFR 372.65: none

OSHA Process Safety Management 29CFR 1910 : none

EPA Accidental Release Prevention 40 CFR 68 : none

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INTERNATIONAL REGULATIONS. none known

STATE AND LOCAL REGULATIONS:

California Safe Drinking Water Act (Prop. 65) Listing : None listed.

Other Regulations / Legislation which apply to this product:

(as Sodium Tripolyphosphate): Massachusetts Substance List, New Jersey Right to Know Hazardous Substance List, Pennsylvania Hazardous Substance List

(as Propylene Glycol) : Pennsylvania Hazardous Substance

SECTION 16: OTHER INFORMATION

NFPA Rating : **HEALTH:** 1 **FLAMMABILITY:** 0 **REACTIVITY:** 0

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

Information and data compiled to compose this MSDS is correct to the best of our knowledge as of the printed date, and is offered solely for your consideration, investigation, and verification.