

SECTION 1: PRODUCT AND COMPANY IDENTIFICATION

PRODUCT NAME: Emulsified Zero Valent Iron (antimethanogenic)
SYNONYMS: EZVI /EZVI-CH4™
PRODUCT CODES:

MANUFACTURER: Provectus Environmental Products, Inc
ADDRESS: 2871 W. Forest Road, #2
 Freeport, IL 61032

EMERGENCY PHONE: (815) 650-2230
CHEMTREC PHONE: (800) 424-9300 (Domestic)
OTHER CALLS:
FAX PHONE:

CHEMICAL NAME: Emulsified Zero Valent Iron (EZVI/EZVI-CH4™)
CHEMICAL FAMILY:
CHEMICAL FORMULA:

PRODUCT USE: Soil & Groundwater Remediation (DNAPL contamination)
PREPARED BY: Provectus Environmental Products, Inc.
SECTION 1 NOTES:

SECTION 2: COMPOSITION/INFORMATION ON INGREDIENTS

<u>INGREDIENT:</u>	<u>CAS NO.</u>	<u>% WT</u>	<u>% VOL</u>	<u>SARA 313 REPORTABLE</u>
Iron (Fe)	7439-89-6	5 – 20	NA	NA
Sorbitan Trioleate	26266-58-0	1 – 5	NA	NA
Food Grade Veg Oil	8001-22-7	30 – 40	NA	NA
Potable Water	7732-18-5	40 – 50	NA	NA
Yeast Extracts*	8013-01-2	0.5 – 5	NA	NA

*(some formulations contain - e.g. EZVI-CH4™)

	<u>ppm</u>	<u>mg/m3</u>
OSHA PEL-TWA:	NA	NA
OSHA PEL STEL :	NA	NA
OSHA PEL CEILING:	NA	NA
ACGIH TLV-TWA:	NA	NA
ACGIH TLV STEL:	NA	NA
ACGIH TLV CEILING:	NA	NA

SECTION 2 NOTES:

SECTION 3: HAZARDS IDENTIFICATION

EMERGENCY OVERVIEW:

ROUTES OF ENTRY:

EYES: YES

SKIN: NO

INGESTION: YES

INHALATION: NO

ACUTE HEALTH HAZARDS: NONE KNOWN

CHRONIC HEALTH HAZARDS: NONE KNOWN

MEDICAL CONDITIONS GENERALLY AGGRAVATED BY EXPOSURE: NONE KNOWN

CARCINOGENICITY

OSHA: NA

ACGIH: NA

NTP: NA

IARC: NA

OTHER: NA

SECTION 3 NOTES:

SECTION 4: FIRST AID MEASURES

EYES: In case of eye contact, rinse opened eye for 15 minutes with water, then consult physician.

SKIN: In case of skin contact, immediately wash affected area(s) with soap & water and rinse thoroughly.

INGESTION: After swallowing seek immediate medical advice. Make physician aware that the following symptoms may occur; stomach cramps, nausea, gastric or intestinal disorders.

INHALATION: NA

NOTES TO PHYSICIANS OR FIRST AID PROVIDERS:

SECTION 4 NOTES:

SECTION 5: FIRE-FIGHTING MEASURES

FLAMMABLE LIMITS IN AIR, UPPER: NA
(% BY VOLUME) LOWER: NA

FLASH POINT:

F: >482 °F

C: >250 °C

METHOD USED: Closed Cup

AUTOIGNITION TEMPERATURE:

F: >760 °F

C: >404 °C

NFPA HAZARD CLASSIFICATION

HEALTH: 1

FLAMMABILITY: 2

REACTIVITY: 1

OTHER:

HMIS HAZARD CLASSIFICATION

HEALTH: 1

FLAMMABILITY: 2

REACTIVITY: 1

PROTECTION:

EXTINGUISHING MEDIA: Extinguishing Powder

SPECIAL FIRE FIGHTING PROCEDURES: DO NOT use water, CO2, or halogenated extinguishers.

UNUSUAL FIRE AND EXPLOSION HAZARDS: NA

HAZARDOUS DECOMPOSITION PRODUCTS: NA

SECTION 5 NOTES:

SECTION 6: ACCIDENTAL RELEASE MEASURES

ACCIDENTAL RELEASE MEASURES:

Personal Safety Measures: Wear protective equipment, keep unprotected persons away, ensure adequate ventilation

Environmental Safety Measures: NA

Spill/Cleanup Safety Measures: Dispose of collected waste and contaminated materials as directed in Section 7.

SECTION 6 NOTES:

SECTION 7: HANDLING AND STORAGE

HANDLING AND STORAGE: Spilled material should be contained and recovered into drums

OTHER PRECAUTIONS: Store in cool, dry, ventilated area. Do Not store near halogens, oxidizers or acidic materials. Keep ignition sources away and ensure good ventilation.

SECTION 7 NOTES:

SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

ENGINEERING CONTROLS: Block off handling or spill area from unprotected persons

VENTILATION : Ensure area is adequately ventilated.

RESPIRATORY PROTECTION: NA

EYE PROTECTION: safety goggles/splash shield

SKIN PROTECTION: tyvec suit with rubberized gloves (neoprene)

OTHER PROTECTIVE CLOTHING OR EQUIPMENT: slip resistant footwear

WORK HYGIENIC PRACTICES: Surfaces covered with EZVI can become VERY slippery. Exercise additional care when handling/cleaning up to avoid slip and fall injury.

EXPOSURE GUIDELINES: NA

SECTION 8 NOTES:

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

APPEARANCE: Black/Dark Gray viscous material

ODOR: cooking oil odor

PHYSICAL STATE: liquid

pH AS SUPPLIED:

pH (Other):

BOILING POINT:

F: >572 °F

C: >300 °C

MELTING POINT:

F: NA

C: NA

FREEZING POINT:

F: - 4 °F

C: - 20 °C

VAPOR PRESSURE (mmHg):

@

F: NA

C: NA

VAPOR DENSITY (AIR = 1):

@

F: NA

C: NA

SPECIFIC GRAVITY (H₂O = 1): 1.05 – 1.13

EVAPORATION RATE: NA

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES (con't)

SOLUBILITY IN WATER: Insoluble

PERCENT SOLIDS BY WEIGHT: 5 – 20 %

PERCENT VOLATILE:

BY WT/ BY VOL @

F: NA

C: NA

VOLATILE ORGANIC COMPOUNDS (VOC):

WITH WATER: NA LBS/GAL

WITHOUT WATER: NA LBS/GAL

VISCOSITY: ~ 1100 cps (@ 75 °F)

SECTION 9 NOTES:

SECTION 10: STABILITY AND REACTIVITY

STABLE

UNSTABLE

STABILITY: X

CONDITIONS TO AVOID (STABILITY): AVOID IMPROPER HANDLING & STORAGE CONDITIONS

INCOMPATIBILITY (MATERIAL TO AVOID): HALOGENS, ACIDS, OXIDIZERS

HAZARDOUS DECOMPOSITION OR BY-PRODUCTS:

HAZARDOUS POLYMERIZATION: NA

CONDITIONS TO AVOID (POLYMERIZATION): NA

SECTION 10 NOTES:

SECTION 11: TOXICOLOGICAL INFORMATION

TOXICOLOGICAL INFORMATION: NA

SECTION 11 NOTES:

SECTION 12: ECOLOGICAL INFORMATION

ECOLOGICAL INFORMATION: NA

SECTION 12 NOTES: Used for environmental cleanup of contaminated soils and groundwater. EZVI is biodegradeable in the environment.

SECTION 13: DISPOSAL CONSIDERATIONS

WASTE DISPOSAL METHOD: Place waste into appropriate containers

RCRA HAZARD CLASS: NA

SECTION 13 NOTES:

SECTION 14: TRANSPORT INFORMATION

U.S. DEPARTMENT OF TRANSPORTATION

PROPER SHIPPING NAME: Emulsified Zero Valent Iron (EZVI)

HAZARD CLASS: NA

ID NUMBER: NA

PACKING GROUP: NONE

LABEL STATEMENT:

WATER TRANSPORTATION

PROPER SHIPPING NAME: Emulsified Zero Valent Iron (EZVI)

HAZARD CLASS: NA

ID NUMBER: NA

PACKING GROUP: NONE

LABEL STATEMENTS:

AIR TRANSPORTATION

PROPER SHIPPING NAME: Emulsified Zero Valent Iron (EZVI)

HAZARD CLASS: NA

ID NUMBER: NA

PACKING GROUP: NONE

LABEL STATEMENTS:

OTHER AGENCIES:

SECTION 14 NOTES:

SECTION 15: REGULATORY INFORMATION

U.S. FEDERAL REGULATIONS

TSCA (TOXIC SUBSTANCE CONTROL ACT): NA

CERCLA (COMPREHENSIVE RESPONSE COMPENSATION, AND LIABILITY ACT): NA

SARA TITLE III (SUPERFUND AMENDMENTS AND REAUTHORIZATION ACT): NA

311/312 HAZARD CATEGORIES: NA

313 REPORTABLE INGREDIENTS: NA

STATE REGULATIONS: NA

INTERNATIONAL REGULATIONS: NA

SECTION 15 NOTES:

SECTION 16: OTHER INFORMATION

OTHER INFORMATION: NA

PREPARATION INFORMATION: NA

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