

SAFETY DATA SHEET

VERTECBIO ELSOL-XR
Product ID: MC447600
Revised: 07-07-2016
Replaces: 05-20-2015

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1. IDENTIFICATION

Product Identifier: VERTECBIO ELSOL-XR
CAS Number: MIXTURE
Recommended Use: Can be used to replace xylene (in most applications) cleaning, coatings, and ink formulation.
Restrictions on Use: No data available.

Vertec BioSolvents, Inc.
1441 Branding Lane, Suite 100
Downers Grove, IL 60515
(630)960-0600

EMERGENCY RESPONSE NUMBER:
Emergency #: (800) 424-9300 (CHEMTREC)

2. HAZARD(S) IDENTIFICATION

GHS Classification(s): Serious Eye Damage/Eye Irritation Category 1
Flammable Liquid Category 2
Skin Corrosion/Irritation Category 2
Specific Target Organ Systemic Toxicity (STOT) - Single Exposure Category 3

GHS Label Elements:

GHS Hazard Symbols:



Signal Word: Danger

Hazard Statements: Highly flammable liquid and vapour.
Causes skin irritation.
Causes serious eye damage.
May cause respiratory irritation.
May cause drowsiness or dizziness.

Precautionary Statements:

Prevention: Keep away from heat, sparks, open flames and hot surfaces. – No smoking.
Ground and bond container and receiving equipment.
Use explosion-proof electrical, ventilating, and lighting equipment.
Use only non-sparking tools.
Take precautionary measures against static discharge.
Avoid breathing dust, gas, mist, vapors or spray.
Wash thoroughly after handling.
Use only outdoors or in a well-ventilated area.
Wear protective gloves/protective clothing/eye protection/face protection.

Response: IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water.
IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing.
IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
Immediately call a POISON CENTER or doctor/physician.

Specific treatment (see First Aid on SDS or on this label).
If skin irritation occurs: Get medical advice or attention.
Take off contaminated clothing and wash before reuse.
In case of fire: Use water fog, carbon dioxide, dry chemical, alcohol foam to extinguish.

Storage: Store in a well-ventilated place. Keep container tightly closed.
Store in a well-ventilated place. Keep cool.
Store in a secure manner.

Disposal: Dispose of in accordance with local, regional and international regulations.

Hazards Not Otherwise Classified: May be harmful or fatal if swallowed and enters airways. Breathing air which contains butyl acetate, resulting from its use in aerosol applications, may cause delayed lung damage.

Percentage of Components with Unknown Acute Toxicity:

Oral: 73.8 %
Dermal: 23.8 %
Inhalation Vapor: 25 %
Inhalation Dust/Mist: 25 %

3. COMPOSITION/INFORMATION ON INGREDIENTS

Substances/Mixtures:

<u>Chemical or Common Name/Synonyms</u>	<u>CAS Number</u>	<u>% by Wt.</u>
N-Butyl Acetate	123-86-4	< 90 %
Proprietary	Proprietary	< 90 %
Ethyl Alcohol	64-17-5	< 90 %
Ethyl Acetate	141-78-6	< 10 %

Note: Any chemical identity and/or exact percentage not expressly stated is being withheld as a trade secret or is due to batch variation.

4. FIRST-AID MEASURES

Description of Necessary Measures:

Eye Contact: If in eyes: Immediately flush eyes with plenty of water for at least 15 minutes while holding eyelids open. Tilt head to avoid contaminating unaffected eye. Get immediate medical attention. Remove contact lens if easy to do.

Skin Contact: If on skin: Immediately flush skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes. Get medical attention immediately. Do not reuse clothing and shoes until cleaned. Wash with soap and water. Discard contaminated leather articles such as shoes and belt. Do not apply oils or ointments unless ordered by the physician.

Inhalation: If inhaled: Remove to fresh air. If breathing is difficult, administer oxygen. If not breathing, give artificial respiration, preferably mouth-to-mouth. GET MEDICAL ATTENTION IMMEDIATELY. Keep warm and quiet.

Ingestion: If swallowed: Call a physician immediately. DO NOT induce vomiting unless directed to do so by a physician. Never give anything by mouth to an unconscious person. If vomiting occurs spontaneously, keep head below hips to prevent aspiration of liquid into the lungs.

Most Important Symptoms/Effects, Acute and Delayed:

Eye Contact: Causes moderate to severe irritation. Liquid or vapor may cause: burning sensation. stinging. discomfort. pain. tearing. change of vision. redness. conjunctivitis. corneal damage. light sensitivity. watering.

Skin Contact: Causes mild to moderate irritation. Contact may cause: discomfort. pain. redness. swelling. drying. cracking. dermatitis (inflammation of the skin). cyanosis of the extremities. Prolonged and repeated contact with skin can cause defatting and drying of the skin which may result in skin irritation and dermatitis. Prolonged contact may cause: tissue destruction.

Skin Absorption: May be harmful if absorbed through skin.

Inhalation: Causes moderate irritation. Vapors may irritate: nose, throat, respiratory tract. May cause: coughing, nasal discomfort and discharge, hoarseness, chest pain, difficulty breathing, burning sensation, excess formation of phlegm, nausea, vomiting. Inhalation overexposure may lead to central nervous system depression producing effects such as: dizziness, drowsiness, sleepiness, headache, slurring of speech, incoordination, stupor, suffocation, unconsciousness. May cause effects similar to those described for swallowing. Aspiration may lead to pulmonary edema. Breathing air which contains butyl acetate, resulting from its use in aerosol applications, may cause delayed lung damage, other symptoms similar to ingestion. High vapor concentrations may cause: central nervous system depression, vertigo, emotional lability, accelerated pulse, face redness, kidney and liver damage, occasional urinary and fecal incontinence.

Ingestion: May cause mild to severe irritation. May be harmful if swallowed. May cause: abdominal discomfort, gastrointestinal irritation, nausea, vomiting, diarrhea, loss of appetite, central nervous system depression, excitement, headache, dizziness, drowsiness, stupor, incoordination, weakness, collapse, unconsciousness, coma, possible death due to respiratory failure. Symptoms may include: tremors, fatigue, hallucinations, distorted perceptions, convulsions. May cause damage to the: liver, kidneys. May cause effects similar to inhalation.

Indication of Immediate Medical Attention and Special Treatment Needed: There is no specific antidote. Treatment of overexposure should be directed at the control of symptoms and the clinical condition of the patient. Individuals experiencing breathing difficulties after exposure to vapor generated in aerosol applications should be observed for at least 48 hours in case delayed respiratory complications develop. Symptoms vary with the alcohol level of the blood. Mild intoxication occurs at blood levels between 0.05%-0.15% and approximately 25% of individuals will show signs of intoxication at these levels. Above 0.15% the person is definitely under the influence of ethanol and 50%-95% of individuals at this level are clinically intoxicated. Severe poisoning occurs when the blood ethanol level is 0.3%-0.5%. Above 0.5% the individual will be comatose and death can occur. The unabsorbed ethanol should be removed by gastric lavage after intubating the patient to prevent aspiration. Avoid the use of depressant drugs or the excessive administration of fluids.

5. FIRE-FIGHTING MEASURES

Extinguishing Media: Dry chemical, Carbon dioxide, Alcohol foam, Water fog. **DO NOT USE:** Jet of high pressure water.

Specific Hazards Arising from the Chemical:

Fire and Explosion Hazards: HIGHLY FLAMMABLE LIQUID. Vapors are heavier than air. Vapors may settle in low or confined areas, or travel long distances along the ground or surface to an ignition source where they may ignite, flashback, or explode. Keep away from heat, sparks, flames or other sources of ignition (e.g., static electricity, pilot lights, mechanical/electrical equipment). **PROCESS HAZARD:** Sudden release of hot organic chemical vapors or mists from process equipment operating at elevated temperature and pressure, or sudden ingress of air into hot equipment under a vacuum, may result in ignitions without the presence of obvious ignition sources. Published "autoignition" or "ignition" temperature values cannot be treated as safe operating temperatures in chemical processes without analysis of the actual process conditions. Any use of this product in elevated-temperature processes should be thoroughly evaluated to establish and maintain safe operating conditions. Rags soaked in solvent can present a fire hazard and should be stored in UL listed or Factory Mutual approved, covered containers. Improperly stored rags, under certain conditions can lead to spontaneous combustion. This material may produce a floating fire hazard. Containers exposed to intense heat from fires should be cooled with water to prevent vapor pressure buildup which could result in container rupture. Container areas exposed to direct flame should be cooled with large quantities of water as needed to prevent weakening of container structure. Oxidizing chemicals may accelerate the burning rate in a fire situation. Prevent buildup of vapors or gases to explosive concentrations.

Hazardous Combustion Products: Carbon oxides.

Special Protective Equipment and Precautions for Fire-Fighters: Evacuate area of unprotected personnel. Wear protective clothing including NIOSH-approved self-contained breathing apparatus. Remain upwind of fire to avoid hazardous vapors and decomposition products. Use water spray to cool fire-exposed containers and disperse vapors. If container is not properly cooled, it can rupture in the heat of a fire. Avoid water accumulation.

Product may reignite and burn on the water's surface. Move containers from fire area if possible without hazard. Water spray can be used to reduce intensity of flames and to dilute spills to a nonflammable mixture. Run-off from fire control may cause pollution.

6. ACCIDENTAL RELEASE MEASURES

Personal Precautions, Protective Equipment, Emergency Procedures: HIGHLY FLAMMABLE LIQUID. Eliminate all sources of ignition. Evacuate unprotected personnel from area. Maintain adequate ventilation. Follow personal protective equipment recommendations found in Section 8. Never exceed any occupational exposure limit.

Methods and Materials for Containment and Clean Up: Contain spill, place into drums for proper disposal. Soak up residue with non-flammable absorbent material. Place in non-leaking containers for immediate disposal. Flush remaining area with water to remove trace residue and dispose of properly. Avoid direct discharge to sewers and surface waters. Notify authorities if entry occurs. Use non-sparking tools and equipment.

7. HANDLING AND STORAGE

Precautions for Safe Handling: Avoid contact with eyes, skin, and clothing. Use with adequate ventilation. Do not swallow. Avoid breathing vapors, mists, or dust. Do not eat, drink, or smoke in work area. Wash thoroughly after handling. Empty containers retain product residue (vapor, dust, or liquid) and can be dangerous. DO NOT pressurize, cut, weld, braze, solder, drill, grind, or expose such containers to heat, flame, sparks, static electricity, or other source of ignition. They may explode and cause injury or death. Take precautionary measures against static discharges. Use appropriate grounding and bonding practices. Use non-sparking tools and equipment. Ethyl Alcohol is listed on the EPA/TSCA inventory of chemical substances. The Bureau of Alcohol, Tobacco and Firearms has issued regulations governing the production, procurement, and use of Ethyl Alcohol. All users must comply with these regulations. Always open containers slowly to allow any excess pressure to vent. Follow OSHA Regulations for flammable and combustible liquids and for airborne contaminants.

Conditions for Safe Storage, Including any Incompatibilities: HIGHLY FLAMMABLE LIQUID. Store in a cool, well-ventilated area away from all sources of ignition and out of direct sunlight. Store in a dry location away from heat. Keep away from incompatible materials. Keep containers tightly closed. Do not store in unlabeled or mislabeled containers. Static electricity may accumulate and create a fire hazard. Ground fixed equipment. Bond and ground transfer containers and equipment. Protect containers against physical damage. Refer to local fire codes for storage requirements and allowable limits. All electrical equipment in areas where this material is stored or handled should be installed in accordance with applicable regulatory requirements and the National Electrical Code. Store in accordance with local/national regulations.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

OSHA Exposure Guidelines:

<u>Component</u>	<u>Limits</u>
N-Butyl Acetate	150 ppm TWA; 710 mg/m ³ TWA
Ethyl Alcohol	1000 ppm TWA; 1900 mg/m ³ TWA
Ethyl Acetate	400 ppm TWA; 1400 mg/m ³ TWA

ACGIH Exposure Guidelines:

<u>Component</u>	<u>Limits</u>
N-Butyl Acetate	150 ppm TWA; 200 ppm STEL
Ethyl Alcohol	1000 ppm STEL
Ethyl Acetate	400 ppm TWA

Engineering Controls: Local exhaust ventilation, process enclosures, or other engineering controls are required when handling or using this product to avoid overexposure. Avoid creating dust or mist. Use explosion-proof ventilation equipment. Do not use in closed or confined spaces. Keep levels below exposure limits. To determine exposure levels, monitoring should be performed regularly.

Individual Protection Measures:

Eye/Face Protection: Wear chemical safety goggles while handling this product. Wear additional eye protection such as a face shield when the possibility exists for eye contact with splashing or spraying liquid, or airborne material. Do not wear contact lenses. Wear a full-face respirator, if needed.

Skin Protection: Prevent contact with this product. Wear gloves and protective clothing depending on condition of use. Protective gloves: Impervious.

Respiratory Protection: Respiratory protection must be worn if ventilation does not eliminate symptoms or keep levels below recommended exposure limits. None required under normal use with adequate ventilation. If exposure limits are exceeded, wear: NIOSH-Approved respirator. NIOSH-Approved self-contained breathing apparatus. DO NOT exceed limits established by the respirator manufacturer. All respiratory protection programs must comply with OSHA 29 CFR 1910.134 and ANSI Z88.2 requirements and must be followed whenever workplace conditions require a respirator's use.

Other Protective Equipment: Eye-wash station. Safety shower. Rubber apron. Chemical safety shoes. Rubber boots. Protective clothing. Impervious clothing.

General Hygiene Conditions: Wash with soap and water before meal times and at the end of each work shift. Handle in accordance with good industrial hygiene and safety practice. Food, beverages, and tobacco products should not be carried, stored or consumed where this material is in use.

9. PHYSICAL AND CHEMICAL PROPERTIES

Physical State: Liquid.

Color: Clear. Colorless.

Odor: Mild solvent odor.

Odor Threshold: N.D.

pH: N.A.

Freezing Point (deg. F): N.D.

Melting Point (deg. F): N.D.

Initial Boiling Point or Boiling Range: 176 °F

Flash Point: 62 °F

Flash Point Method: TCC.

Evaporation Rate (nBuAc = 1): 0.89

Flammability (solid, gas): N.D.

Lower Explosion Limit: N.A.

Upper Explosion Limit: N.A.

Vapor Pressure (mm Hg): 36

Vapor Density (air=1): ~ 3

Specific Gravity or Relative Density: 0.886 @ 25 °C

Solubility in Water: Partially

Partition Coefficient (n-octanol/water): N.D.

Autoignition Temperature: No Data

Decomposition Temperature: N.D.

Viscosity: N.D.

% Volatile (wt%): N.D.

VOC (wt%): 886 g/l

VOC (lbs/gal): 7.46

Fire Point: N.D.

10. STABILITY AND REACTIVITY

Reactivity: No data available.

Chemical Stability: Stable under normal conditions.

Possibility of Hazardous Reactions: Hazardous polymerization will not occur under normal conditions.

Conditions to Avoid: Avoid contact with heat, sparks, electric arcs, other hot surfaces, and open flames. Avoid plastics, resins and rubber. Avoid other ignition sources.

Incompatible Materials: Oxidizing agents. Nitric acid. Sodium hydroxide. Perchloric Acid. Chromium trioxide. Alkali metal hydroxides. Chlorosulfonic acid. Alumina. Strong acids. Amines. Peroxides. Polymerization initiators. Nitrates. Caustics. Potassium tert-butoxide. Silica gel. Strong bases. Strong inorganic acids. Alkali metals. Strong alkalies. Nitric Acid. Lithium tetrahydroaluminate. Oxygen under pressure.

Hazardous Decomposition Products: Carbon dioxide. Carbon monoxide. Acetic acid.

11. TOXICOLOGICAL INFORMATION

Routes of Exposure: Eyes. Skin. Inhalation. Ingestion. Absorption.

Symptoms/Effects: Acute, Delayed and Chronic:

Eye Contact: Causes moderate to severe irritation. Liquid or vapor may cause: burning sensation. stinging. discomfort. pain. tearing. change of vision. redness. conjunctivitis. corneal damage. light sensitivity. watering.

Skin Contact: Causes mild to moderate irritation. Contact may cause: discomfort. pain. redness. swelling. drying. cracking. dermatitis (inflammation of the skin). cyanosis of the extremities. Prolonged and repeated contact with skin can cause defatting and drying of the skin which may result in skin irritation and dermatitis. Prolonged contact may cause: tissue destruction.

Skin Absorption: May be harmful if absorbed through skin.

Inhalation: Causes moderate irritation. Vapors may irritate: nose. throat. respiratory tract. May cause: coughing. nasal discomfort and discharge. hoarseness. chest pain. difficulty breathing. burning sensation. excess formation of phlegm. nausea. vomiting. Inhalation overexposure may lead to central nervous system depression producing effects such as: dizziness. drowsiness. sleepiness. headache. slurring of speech. incoordination. stupor. suffocation. unconsciousness. May cause effects similar to those described for swallowing. Aspiration may lead to pulmonary edema. Breathing air which contains butyl acetate, resulting from its use in aerosol applications, may cause delayed lung damage. other symptoms similar to ingestion. High vapor concentrations may cause: central nervous system depression. vertigo. emotional lability. accelerated pulse. face redness. kidney and liver damage. occasional urinary and fecal incontinence.

Ingestion: May cause mild to severe irritation. May be harmful if swallowed. May cause: abdominal discomfort. gastrointestinal irritation. nausea. vomiting. diarrhea. loss of appetite. central nervous system depression. excitement. headache. dizziness. drowsiness. stupor. incoordination. weakness. collapse. unconsciousness. coma. possible death due to respiratory failure. Symptoms may include: tremors. fatigue. hallucinations. distorted perceptions. convulsions. May cause damage to the: liver. kidneys. May cause effects similar to inhalation.

Numerical Measures of Toxicity:

<u>Component</u>	<u>Oral LD50</u>	<u>Dermal LD50</u>	<u>Inhalation LC50</u>
N-Butyl Acetate	No Data	Rabbit: > 17600 mg/kg	4H Rat: 390 ppm
Proprietary	Rat: > 2000 mg/kg	Rat: 5000 mg/kg	No Data
Ethyl Alcohol	No Data	No Data	4H Rat: 124.7 mg/L
Ethyl Acetate	Rat: 5620 mg/kg	Rabbit: > 20 ml/kg	4H Mouse: 1500 ppm

Cancer Information:

This product does not contain 0.1% or more of the known or potential carcinogens listed in NTP, IARC, or OSHA.

Medical Conditions Aggravated by Exposure to Product: Eye disorders. Skin disorders. Respiratory system disorders. Central nervous system disorders. Liver disorders. Impaired respiratory function.

Other: Ethyl Alcohol:

Chronic: May cause reproductive and fetal effects. Laboratory experiments have resulted in mutagenic effects. Animal studies have reported the development of tumors. Prolonged exposure may cause liver, kidney, and heart damage. Long term exposure can cause loss of appetite, weight loss, nervousness, memory loss, and mental retardation.

12. ECOLOGICAL INFORMATION

Ecotoxicological Information: Acute Aquatic Toxicity (Flathead Minnow, Daphnia, Algae) = Essentially non-toxic (>100 mg/L, Acute Category III)

Chemical Fate Information: Biodegradable. This material is not expected to bioaccumulate. Accidental spillage may lead to penetration in the soil and ground water, however there is no evidence that it will cause adverse ecological effects.

13. DISPOSAL CONSIDERATIONS

Hazardous Waste Number: D001

Note: When Ethyl Acetate is a spent solvent, it is classified as a hazardous waste from a nonspecific source (F003), as stated in 40 CFR 261.31.

Disposal Method: Dispose of in a permitted hazardous waste management facility following all local, state and federal regulations. Since emptied containers retain product residue, follow label warnings even after container is emptied. DO NOT pressurize, cut, weld, solder, drill, grind or expose empty containers to heat, flame, sparks or other sources of ignition.

14. TRANSPORT INFORMATION

DOT (Department of Transportation):

Identification Number: UN1993
Proper Shipping Name: FLAMMABLE LIQUID, N.O.S. (CONTAINS ETHYL ACETATE, N-BUTYL ACETATE)
Hazard Class: 3
Packing Group: II
Label Required: FLAMMABLE
Reportable Quantity (RQ): 5000# (Butyl Acetate); 5000# (Ethyl Acetate)

15. REGULATORY INFORMATION

TSCA Inventory Status: All components of this product are on the TSCA Inventory or are exempt from TSCA Inventory requirements.

SARA Title III Section 311/312 Category Hazards:

	<u>Immediate (Acute)</u>	<u>Delayed (Chronic)</u>	<u>Fire Hazard</u>	<u>Pressure Release</u>			<u>Reactive</u>	
	Yes	Yes	Yes	No			No	
Regulated Components:								
Component		CAS	CERCLA	SARA	SARA	U.S.	WI	Prop
		Number	RQ	EHS	313	HAP	HAP	65
N-Butyl Acetate		123-86-4	Yes	No	No	No	No	No
Ethyl Alcohol		64-17-5	No	No	No	No	No	Yes*
Ethyl Acetate		141-78-6	Yes	No	No	No	No	No

***Prop 65 - May Contain the Following Trace Components:**

No data available.

Note: *Ethyl alcohol in alcoholic beverages is listed.

16. OTHER INFORMATION

Hazard Rating System

Health: 2*
Flammability: 3
Reactivity: 0

* = Chronic Health Hazard

NFPA Rating System

Health: 2
Flammability: 3
Reactivity: 0
Special Hazard: None

SDS Abbreviations

N.A. = Not Applicable
N.D. = Not Determined
HAP = Hazardous Air Pollutant
VOC = Volatile Organic Compound
C = Ceiling Limit
N.E./Not Estab. = Not Established

SDS Prepared by:

Reason for Revision: Remove skin sensitization per updated ingredient SDSs.

Revised: 07-07-2016

Replaces: 05-30-2015

The data in this Material Safety Data Sheet relates to the specific material designated and does not relate to its use in combination with any other material or process. The data contained is believed to be correct. However, since conditions of use are outside our control it should not be taken as warranty or representation for which Vertec Biosolvents, Inc. assumes legal responsibility. This information is provided solely for your consideration, investigation, and verification.