



MATERIAL SAFETY DATA SHEET

Chemtrec 24-Hour Emergency Telephone

Domestic North America
International

(800)424-9300
(800)527-3887

1. Product and Supplier Identification

Product Name: ORCA SOLUTIONS S-924 MEKP CATALYST / RED

Product Number: 081S924RG

Date of Prep: 01/20/2011

Product Type: Methyl Ethyl Ketone Peroxide (MEKP) and Cumyl Hydroperoxide (CHP)
Product Family: Organic Peroxide – Ketone / Peroxide/Hydroperoxide Mix

Supplier: Orca Composites / Fiberlay Inc.
24 S. Idaho St
Seattle, Wa 98134
(206) 782-0660

2. Composition/Information On Ingredients

Component	% (w/w)	CAS Number
Methyl Ethyl Ketone Peroxide	25-26%	1338-23-4
Cumyl Hydroperoxide	21-23%	80-15-9
Dimethyl Phthalate	23-48%	131-11-3
2,2,4-Trimethyl-1,3-pentanediol diisobutyrate	14-16%	6846-50-0
Cumene	01-02%	98-82-8
Acetophenone	01-02%	98-86-2
Methyl Ethyl Ketone	00-01%	78-93-3
Dimethyl Benzyl Alcohol	00-01%	617-94-7
Hydrogen Peroxide	00-01%	7722-84-1

3. Hazards Identification

PHYSICAL HAZARDS: Organic Peroxide. Decomposition.

HEALTH HAZARDS: Severe Irritant.

EXPOSURE LIMITS: The ACGIH Ceiling STEL is 1.5 mg/m³ (0.2 ppm) for Methyl Ethyl Ketone Peroxide.

ROUTES OF EXPOSURE:

Skin Contact Severe skin irritant, causes redness, blistering, and edema.

Eye Contact Eye contact causes severe corrosion and may cause blindness.

Ingestion Human systemic effects by ingestion: changes in structure or function of esophagus, nausea, or vomiting, and other gastrointestinal effects.

Inhalation Moderately toxic by inhalation.

EFFECTS OF OVER-EXPOSURE:

Prolonged inhalation of vapors may cause mucous membrane irritation and vertigo. There are no known medical conditions, which are recognized as being aggravated by exposure.

4. First Aid Measures

- Skin:** Immediately remove any contaminated clothing. Wash contaminated area thoroughly with soap and copious amounts of water for at least 15 minutes. If irritation or adverse symptoms develop, seek medical attention.
- Eyes:** Remove any contact lenses at once. Flush eyes with water for at least 15 minutes. Ensure adequate flushing by separating the eyelids with fingers. If irritation or adverse symptoms develop, seek medical attention.
- Ingestion** **Do Not** induce vomiting. Drink plenty of water. Immediately call a physician. For aid to physician, suggest local Poison Control Center.
- Inhalation:** Remove to fresh air, if coughing, breathing becomes labored, irritation develops or other symptoms develop, seek medical attention at once, even if symptoms develop several hours after the exposure.

5. Fire Fighting Measures

- FLASH POINT:** >200°F (93°C) C.O.C.
- FLAMMABLE LIMITS:** Not established.
- AUTOIGNITION POINT:** Not established.
- EXTINGUISHING MEDIA:** Water from a safe distance - preferably with a fog nozzle. In case of very small fires, other means such as carbon dioxide, foam or dry chemical extinguishers may be effective. Dry chemical combined with MEKP formulations may re-ignite. Light water additives may be particularly effective at extinguishing MEKP fires.
- SPECIAL FIRE FIGHTING PROCEDURES:** Firemen should be equipped with protective clothing and SCBA's. In case of fire near storage area, cool the containers with water spray. If dry chemical is used to extinguish an MEKP fire, the extinguished area must be thoroughly wetted down with water to prevent re-ignition.
- UNUSUAL FIRE AND EXPLOSION HAZARDS:** The heat of decomposition of the peroxides adds to the heat of the fire. Dry chemical fire extinguishing agent may catalyze the decomposition.

6. Accidental Release Measures

STEPS TO BE TAKEN IN EVENT OF SPILL OR RELEASE:

Dike spill to prevent runoff from entering drains, sewers, streams, etc. Wet spilled material with water and absorb with an inert absorbent material such as perlite, vermiculite, or sand. Sweep up using non-sparking tools and place in a clean polyethylene drum or a polyethylene pail. **DO NOT place into a steel container, lined or unlined, as a decomposition may occur.** Treat any contaminated cardboard packaging as hazardous waste. **Wet container contents with additional water prior to sealing.**

7. Handling and Storage

- HANDLING:** Rotate stock using the oldest material first. Avoid contact with skin, eyes and clothing. Use PPE as specified in Section 8. Keep containers closed to prevent contamination. Keep away from sources of heat, sparks or flame. Do not add to hot solvents or monomers as a violent decomposition and/or reaction may result. When using spray equipment, never spray raw MEKP onto curing or into raw resin or flues. Keep MEKP in its original container. **DO NOT USE NEAR FOOD OR DRINK.** Wash thoroughly after handling.
- STORAGE:** The stability of MEKP formulations is directly related to the shipping and storage temperature history. Cool storage at 80°F or below is recommended for longer shelf life and stability. Prolonged storage at elevated temperatures of 100°F and higher will cause product degradation, gassing and potential container rupture which can result in a fire and/or explosion. Store out of direct sunlight in a well ventilated area away from combustible and incompatible materials. **DO NOT STORE WITH FOOD OR DRINK.** Refer to NFPA 432 Code for the Storage of Organic Peroxide Formulations from the National Fire Protection Association for additional storage information.
- OTHER PRECAUTIONS:**
Unmixed, uncontaminated material, remaining at the end of the day, shall be returned to a proper organic peroxide storage area. Under no circumstances should material be returned to the original container.

8. Exposure Controls, Personal Protection

VENTILATION:	Mechanical, general.
RESPIRATORY PROTECTION:	If airborne concentrations are expected to exceed acceptable levels wear a NIOSH approved air-purifying respirator with an organic vapor cartridge or canister. When using respirators refer to OSHA's 29CFR 1910.134.
EYE PROTECTION:	Safety goggles recommended. Permanent eyewash is highly recommended.
HAND PROTECTION:	Protective gloves recommended, solvent resistant, such as butyl rubber, nitrile or neoprene.
OTHER:	A safety shower and eyewash is recommended when the risk of a significant exposure exists.

9. Physical and Chemical Properties

APPEARANCE AND ODOR:	Water white liquid with a slight odor.
BOILING POINT:	Not established.
VAPOR PRESSURE:	Not established.
VAPOR DENSITY:	> 1
EVAPORATION RATE:	< 1 (ethyl ether =1)
% VOLATILE BY VOLUME:	Not established.
SOLUBILITY IN WATER:	Slightly soluble in water.
SPECIFIC GRAVITY:	1.1
FLASH POINT:	>200°F (93°C) C.O.C.
FLAMMABLE LIMITS:	Not established.
SADT:	>60°C (140°F)
pH:	Not applicable.

10. Stability and Reactivity

STABILITY:	Stable when kept in original, closed container, out of direct sunlight at temperatures below 80°F (27°C).
CONDITIONS TO AVOID:	Contamination. Direct sunlight. Open flames. Prolonged storage above 100°F (38°C). Storage above SADT. Storage near flammable or combustible materials.
MATERIALS TO AVOID:	Dimethylaniline, cobalt napthenate and other promoters, promoted resins, accelerators, oxidizing and reducing agents, strong acids, bases, metals, metal alloys and salts, sulfur compounds, amines or any hot material.
HAZARDOUS DECOMPOSITION PRODUCTS:	Decomposition products are flammable. Acrid smoke and irritating fumes.
HAZARDOUS POLYMERIZATION:	Will not occur.

11. Toxicological Information

Methyl Ethyl Ketone Peroxide

Hazard Data:

Inhalation: Rat--LC₅₀: 200 ppm/4 hr, lung, thorax, respiration, or dyspnea; Mouse--LC₅₀: 170 ppm/4 hr, lung, thorax, respiration, or dyspnea.

Intraperitoneal: Rat--LD₅₀: 65 mg/kg, behavioral, muscle weakness behavioral, ataxia.

Oral: Rat--LD₅₀: 484 mg/kg; Mouse--LD₅₀: 470 mg/kg; Human--TD_{Lo}: 480 mg/kg, changes in structure or function of esophagus gastrointestinal, nausea or vomiting gastrointestinal.

Skin: Rabbit--LD₅₀: 500 mg.

Cumyl Hydroperoxide

Hazard Data:

Inhalation: Mouse & Rat--LC₅₀: 200 ppm/4 hr, lung, thorax, respiration, or dyspnea.

Intraperitoneal: Rat--LD₅₀: 95 mg/kg, behavioral, muscle weakness behavioral, ataxia; Mouse--LD₅₀: 270 mg/kg.

Oral: Rat--LD₅₀: 382 mg/kg, kidney, ureter, and bladder, hematuria.

Skin: Rat--LD₅₀: 500 mg/kg.

Subcutaneous: Rat--LD₅₀: 382 mg/kg; Mouse--LD₅₀: 490 mg/kg.

Dimethyl Phthalate**Hazard Data:****Inhalation:** Cat--LC_{Lo}: 9300 mg/m³/6.5 hr.**Intraperitoneal:** Mouse--LD₅₀: 1380 mg/kg.**Oral:** Rat & Mouse--LD₅₀: 6800 mg/kg, somnolence behavioral, withdrawal nutritional and gross metabolic, weight loss or decreased weight gain; Dog--LD: >1400 mg/kg; Rabbit--LD₅₀: 4400 µL/kg.**Subcutaneous:** Mouse--LD_{Lo}: 6500 mg/kg, dyspnea lung, thorax, respiration, or cyanosis.**2,2,4-Trimethyl-1,3-pentanediol diisobutyrate****Hazard Data:****Oral:** Rat--LD₅₀: >3200 mg/kg**Cumene****Hazard Data:****Inhalation:** Rat--LC_{Lo}: 8000 ppm/4 hr; Mouse--LC₅₀: 10 gm/m³/7 hr, multiple effects kidney, ureter, and bladder, changes in both tubules and glomeruli blood, changes in spleen.**Oral:** Rat--LD₅₀: 1400 mg/kg, gastrointestinal, gastritis; Mouse--LD₅₀: 12750 mg/kg.**Skin:** Rabbit--LD₅₀: 12300 µL/kg.**Acetophenone****Hazard Data:****Inhalation:** Rat--LC: >210 ppm/8hr; Mammal--LC₅₀: 1200 mg/m³.**Intraperitoneal:** Mouse--LD₅₀: 200 mg/kg.**Oral:** Rat--LD₅₀: 815 mg/kg; Mouse--LD₅₀: 740 mg/kg; Mammal (unspecified)--LD₅₀: 2700 mg/kg.**Skin:** Rabbit--LD₅₀: 15900 µL/kg; Guinea Pig--LD₅₀: >20 mL/kg.**Subcutaneous:** Mouse--LD_{Lo}: 330 mg/kg.**Methyl Ethyl Ketone****Hazard Data:****Eye:** Human: 350 ppm.**Inhalation:** Rat--LC₅₀: 23500 mg/m³/8hr.**Intraperitoneal:** Rat--LD₅₀: 607 mg/kg; Mouse--LD₅₀: 616 mg/kg.**Oral:** Rat--LD₅₀: 2737 mg/kg; Mouse--LD₅₀: 4050 mg/kg.**Skin:** Rabbit--LD₅₀: 6480 mg/kg.**Dimethylbenzyl alcohol****Hazard Data:****Oral:** Rat--LD₅₀: 1300 mg/kg; Mouse--LD₅₀: 1400 mg/kg.**Skin:** Rabbit--LD₅₀: 4300 mg/kg.**Hydrogen Peroxide****Hazard Data:****Inhalation:** Mouse--LC_{Lo}: 227 ppm; Rat--TC_{Lo}: 67 ppm/6hr/6W-1, dermatitis, irritative of the skin.**Intraperitoneal:** Mouse--LD₅₀: 880 mg/kg.**Intravenous:** Rabbit--LD₅₀: 15 gm/kg, behavioral, convulsions or effect on seizure threshold.**Oral:** Rat--LD₅₀: 376 mg/kg, gastrointestinal, peritonitis blood, pigmented or nucleated red blood cells; Mouse--LD₅₀: 2 mg/kg.**Subcutaneous:** Rat--LD₅₀: 620 mg/kg; Mouse--LD₅₀: 1072 mg/kg.**Skin:** Rat--LD₅₀: 4060 mg/kg, lung, thorax, respiration, or pulmonary emboli; Rabbit--LD_{Lo}: 500 mg/kg, behavioral, convulsions or effect on seizure threshold.

12. Ecological Information

No data is available on the preparation itself. The product should be prevented from entering drains, sewers, streams, etc.

Ecotoxicity: Methyl ethyl ketone peroxide: EC₅₀ (Guppy), 44.2 mg/L/96 hr; EC₅₀ (alga), 42,700 µg/L/96 hr.

Environmental Fate: Methyl ethyl ketone peroxide (MEKP) was evaluated for biodegradability in a closed bottle system and was reported to be readily biodegradable. An EC₅₀ of 16mg MEKP/L activated sludge was reported in an activated sludge respiration inhibition test.

13. Disposal Considerations

Product disposal:

Prevent material from entering drains, sewers, streams, etc.

Immediately dispose of waste material at a RCRA approved hazardous waste management facility in accordance with federal, state and local regulations.

14. Transport Information

DOT Shipping Name: ORGANIC PEROXIDE TYPE D, LIQUID
(METHYL ETHYL KETONE PEROXIDE, ≤26%,
CUMYL HYDROPEROXIDE, ≤22%)

DOT Hazard Class: 5.2

UN/NA ID No.: UN3105

DOT Packing Group: PG II

DOT RQ: RQ (if shipping container is greater than 38.4 lbs)

Labels: 5.2 (Organic Peroxide)

2004 ERG GUIDE NO.: 145

15. Regulatory Information

The following chemicals are subject to the reporting requirements of Section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 and 40 CFR Part 372.

Chemical Name	CAS Number	Percent
Dimethyl Phthalate	31-11-3	31 - 33
Cumyl Hydroperoxide	80-15-9	21 - 22
Cumene	98-82-8	1 - 2
Acetophenone	98-86-2	1 - 2
Methyl Ethyl Ketone	78-93-3	0 - 1

Reportable Quantity

2-Butanone Peroxide (MEKP): 10 lbs (4.54 kg) alpha,
alpha-Dimethylbenzylhydroperoxide (CHP): 10 lbs (4.54 kg)

Australian Inventory of Chemical Substances (AICS)

The ingredients in this product are listed in the Australian AICS Inventory.

Canadian Domestic Substances List (DSL)

The ingredients in this product are listed in the Canadian DSL Inventory.

Chinese Inventory of Existing Chemical Substances Manufactured or Imported in China (IECSC)

The ingredients in this product are listed in the Chinese IECSC Inventory.

European Inventory of Existing Commercial Chemical Substances (EINECS)

The ingredients in this product are listed in the European EINECS Inventory.

Japanese Existing and New Chemical Substances (ENCS)

The ingredients in this product are listed in the Japanese ENCS Inventory.

Korean Existing Chemicals List (ECL)

The ingredients in this product are listed in the Korean ECL Inventory.

US Toxic Substances Control Act (TSCA)

The ingredients in this product are listed in the US TSCA Inventory.

Status of Carcinogenicity

Not recognized as a carcinogen by the IARC, NTP or OSHA.

16. Other Information

VOC Information

Using ASTM Test Method D-2369-87, but at 40°C (since MEKP and CHP decompose rapidly above 100°C and are not VOCs), Orca S-924 contains 5.7% VOC, by weight, or 59 grams per liter. For more information, call Orca Composites.

NFPA 432 Organic Peroxide Classification

Class III

NFPA 704 Rating

Health: 3

Flammability: 2

Reactivity: 2

HMIS Rating

Health: 3

Flammability: 2

Reactivity: 2

MSDS Reference: 081S9240G - ORCA SOLUTIONS S-924 MEKP CATALYST CLEAR

Prepared by: Orca Composites / Fiberlay Inc.

Preparation Date: 01/20/2011

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