

SAFETY DATA SHEET

1. PRODUCT AND COMPANY IDENTIFICATION

1.1. Product identifier

Trade name ORCA 980 Methyl Ethyl Ketone Peroxide
 CAS No.: Multiple
 Product Code(s) 081S980G, 081S980RG, 081S980FRG

1.2. Recommended use of the chemical and restrictions on use

Relevant applications identified Curing agent (polymer technology)

1.3. Details of the supplier of the safety data sheet

Distributor

Fiberlay, Inc.,
 1648 Northgate Blvd
 Sarasota, FL 34234
 USA

Telephone 206-782-0660 or 1-800-782-0662

Email address www.fiberlay.com

1.4. 24 HOUR EMERGENCY TELEPHONE NUMBERS: CHEMTREC – US & CANADA:

CHEMTREC +1 703-527-3887 (collect calls accepted)
INTERNATIONAL:

Product Regulatory Information : 800-231-2702

2. HAZARDS IDENTIFICATION

2.1. Classification of the substance or mixture

Classification according to Regulation 29CFR 1910.1200

Flammable liquids	Category 4	H227
Organic peroxides	Type D	H242
Skin corrosion	Category 1B	H314
Serious eye damage	Category 1	H318
Acute aquatic toxicity	Category 3	H402
Chronic aquatic toxicity	Category 3	H412

2.2. Label elements

Statutory basis Classification according to Regulation 29CFR 1910.1200
 Symbol(s)



Signal word	Danger
Hazard statement	H227 - Combustible liquid H242 - Heating may cause a fire. H314 - Causes severe skin burns and eye damage. H412 - Harmful to aquatic life with long lasting effects.
Precautionary statement: Prevention	P210 - Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking. P220 - Keep/Store away from clothing/ strong acids, bases, heavy metal salts and other reducing substances /combustible materials. P234 - Keep only in original container. P260 - Do not breathe dust or mist. P264 - Wash skin thoroughly after handling. P273 - Avoid release to the environment. P280 - Wear protective gloves/ protective clothing/ eye protection/ face protection.
Precautionary statement: Reaction	P301 + P330 + P331 - IF SWALLOWED: rinse mouth. Do NOT induce vomiting. P303 + P361 + P353 - IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower. P304 + P340 - IF INHALED: Remove person to fresh air and keep comfortable for breathing. P305 + P351 + P338 - IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. P310 - Immediately call a POISON CENTER/doctor. P363 - Wash contaminated clothing before reuse. P370 + P378 - In case of fire: Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide to extinguish.
Precautionary statement: Storage	P403 + P235 - Store in a well-ventilated place. Keep cool. P405 - Store locked up. P411 - Store at temperatures not exceeding 38°C (100°F). P420 - Store away from other materials.
Precautionary statement: Disposal	P501 - Dispose of contents/ container to an approved waste disposal plant.

2.3. Other hazards

None known.

3. COMPOSITION / INFORMATION ON INGREDIENTS

Methyl ethyl ketone peroxide	32% - 35%	
CAS-No.1338-23-4		
Flammable liquids		Category 4
Organic peroxides		Type D
Acute toxicity (Oral)		Category 4
Skin corrosion		Category 1B
Serious eye damage		Category 1
Phlegmatizer	8-25%	
CAS-No. Proprietary		
Acute aquatic toxicity		Category 2
Chronic aquatic toxicity		Category 2
Methyl ethyl ketone	0% - 2%	
CAS-No 78-93-3		
Flammable liquids		Category 2
Eye irritation		Category 2A
Specific target organ toxicity - single exposure (Central nervous system)		Category 3

Hydrogen peroxide

<= 1%

CAS-No.7722-84-1

Oxidizing liquids

Acute toxicity (Oral)

Skin corrosion

Serious eye damage

Specific target organ toxicity - single exposure (Respiratory system)

Chronic aquatic toxicity

Category 1

Category 4

Category 1A

Category 1

Category 3

Category 3

Other information

This material is classified as hazardous under OSHA Regulations

4. FIRST AID MEASURES**4.1. Description of first aid measures****Inhalation**

If inhaled, remove to fresh air. If breathing is difficult, give oxygen. If unconscious, evaluate the need for artificial respiration. Get immediate medical attention.

Skin contact

Immediately wash skin with soap and plenty of water. Remove contaminated clothing. Obtain medical attention immediately if symptoms occur. Wash clothing before reuse.

Eye contact

In case of contact, immediately flush eyes with plenty of water. Obtain medical attention if irritation develops.

Ingestion

If swallowed, do not induce vomiting: seek medical advice immediately and show this container or label.

4.2 Most important symptoms and effects, both acute and delayed Symptoms

None known

4.3 Indication of any immediate medical attention and special treatment needed

None known.

5. FIRE FIGHTING MEASURES**5.1. Extinguishing media**

Suitable extinguishing media: Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide. Dry Chemical combined with peroxide may reignite fire., Light water additives may be particularly effective at extinguishing peroxide fires.

Unsuitable extinguishing media: High volume water jet.

5.2. Special hazards arising from the substance or mixture

The heat of decomposition of the peroxides adds to the heat of the fire. Dry chemical fire extinguishing agent may catalyze the decomposition.

5.3. Advice for firefighters

If dry chemical is used to extinguish a peroxide fire, the extinguished area must be thoroughly wetted down with water to prevent re-ignition.

As in any fire, wear self-contained positive-pressure breathing apparatus and full protective gear.

Containers near the source of fire should be cooled with a water spray to prevent contents from reaching decomposition temperature.

6. ACCIDENTAL RELEASE MEASURES**6.1. Personal precautions, protective equipment and emergency procedures**

Evacuate personnel to safe areas. Wear a self-contained breathing apparatus and appropriate personal protective equipment. (See Section 8 - Exposure Controls/Personal Protection.) Remove all sources of ignition. Ventilate the area.

6.2. Environmental precautions

Obey relevant local, state, provincial and federal laws and regulations. Do not contaminate any lakes, streams, ponds, groundwater or soil.

6.1. Methods and material for containment and cleaning up

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 decomposition may occur. Treat any contaminated cardboard packaging as hazardous waste. Wet container with additional water prior to sealing. Use absorbent/absorbent material to solidify liquids. Clean up promptly by sweeping or vacuum. Wear protective equipment, including eye protection, to avoid exposure (see Section 8 for specific handling precautions).

7. HANDLING AND STORAGE

7.1. Precautions for safe 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 peroxide onto curing or into raw resin or flues. Keep peroxide in its original container. DO NOT USE NEAR FOOD OR DRINK. Wash thoroughly after handling. Protect from contamination. Keep tightly sealed in original packing. Risk of decomposition. Wash thoroughly after handling.

7.2. Conditions for safe storage, including any incompatibilities

Storage

The stability of peroxide formulations is directly related to the shipping and storage temperature history. Cool storage at 80° F (27°C) or below is recommended for longer shelf life and stability. Prolonged storage at elevated temperatures of 100° F (38°C) 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 material. DO NOT STORE WITH FOOD OR DRINK.

Refer to NFPA 400 Hazardous Materials Code from the National Fire Protection Association for additional storage information.

Further information

Store apart from other dangerous and incompatible substances. Keep away from direct sunlight. Keep containers tightly closed in a cool, well-ventilated place.

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

Methyl ethyl ketone peroxide

CAS-No. 1338-23-4

Control parameters 0.2 ppm Ceiling Limit Value:(ACGIH)

Control parameters 0.2 ppm Ceiling Limit Value:(US CA OEL)

1.5 mg/m3

Dimethyl phthalate

CAS-No. 131-11-3

Control parameters 5 mg/m3 Time Weighted Average (TWA):(ACGIH)

Control parameters 5 mg/m3 Permissible exposure limit:(OSHA Z1)

Control parameters 5 mg/m3 Time Weighted Average (TWA) Permissible Exposure Limit (PEL):(US CA OEL)

Methyl ethyl ketone

CAS-No. 78-93-3

Control parameters 200 ppm Time Weighted Average (TWA):(ACGIH)

Control parameters 300 ppm Short Term Exposure Limit (STEL):(ACGIH)

Control parameters 200 ppm Permissible exposure limit:(OSHA Z1)

590 mg/m3

Control parameters 200 ppm Time Weighted Average (TWA) Permissible

590 mg/m3

Exposure Limit (PEL):(US CA OEL)

Control parameters 300 ppm Short Term Exposure Limit (STEL):(US CA OEL)

885 mg/m3

Hydrogen peroxide		
CAS-No.	7722-84-1	
Control parameters	1 ppm	Time Weighted Average (TWA):(ACGIH)
Control parameters	1 ppm 1.4 mg/m3	Permissible exposure limit:(OSHA Z1)
Control parameters	1 ppm 1.4 mg/m3	Time Weighted Average (TWA) Permissible Exposure Limit (PEL):(US CA OEL)

8.2. Exposure controls

Engineering measures

Local exhaust and mechanical ventilation recommended.

8.3 Personal protective equipment

Respiratory protection

A respiratory protection program that meets OSHA 1910.134 and ANSI Z88.2 or applicable federal/provincial requirements must be followed whenever workplace conditions warrant respirator use. NIOSH's "Respirator Decision Logic" may be useful in determining the suitability of various types of respirators.

Hand protection

Wear protective gloves made of the following materials:

solvent-resistant gloves (butyl-rubber)

nitrile rubber

Neoprene gloves

Skin should be washed after contact.

Eye protection

Use chemical splash goggles or face shield.

Skin and body protection

A safety shower and eye wash fountain should be readily available.

To identify additional Personal Protective Equipment (PPE) requirements, it is recommended that a hazard assessment in accordance with the OSHA PPE Standard (29CFR1910.132) be conducted before using this product.

Hygiene measures

Do not eat, drink or smoke during use.

Wash hands before breaks and immediately after handling the product.

Protective measures

Personal protective equipment comprising: suitable protective gloves, safety goggles and protective clothing

9. PHYSICAL AND CHEMICAL PROPERTIES

9.1. Information on basic physical and chemical properties

physical state	liquid
Color	Water-white.
Form	liquid
Odor	slight
Odor Threshold	No data available
pH	not applicable
Melting point/range	no data available
Boiling point/range	not determined
Flash point	76 °C (Seta closed cup)
Evaporation rate	not determined
Flammability (solid, gas)	not applicable
Lower explosion limit	no data available
Upper explosion limit	no data available
Vapor pressure	no data available
Relative vapor density	> 1
Relative density	1.1
Water solubility	soluble
Solubility/qualitative	no data available

Partition coefficient (n- octanol/water)	no data available
Auto-ignition temperature	no data available
Thermal decomposition	> 60 °C
Viscosity, dynamic	no data available
Viscosity, kinematic	not determined

9.2. Other information

peroxides SADT	SADT	The substance or mixture is an organic peroxide classified as type D. > 60 °C
-------------------	------	--

10. STABILITY AND REACTIVITY

10.1. Reactivity

Stable under recommended storage conditions.

10.2. Chemical stability

Contact with incompatible substances can cause disintegration at or below SADT.

10.3. Possibility of hazardous reactions

Stability Stable under recommended storage conditions.

Possibility of hazardous reactions Vapors may form explosive mixtures with air.

10.4. Conditions to avoid

Keep away from heat and sources of ignition.

Exposure to sunlight.

Prolonged storage above 100°F (38°). Storage above SA DT. Storage near flammable or combustible material.

10.5. Incompatible materials

Keep away from strong acids, bases, heavy metals, salts, reducing agents and accelerators.

Contaminants (e.g. rust, dust, ash). Combustible materials., Risk of decomposition. Dimethylaniline, cobalt napthenate and other promoters, accelerators, reducing agents, or any hot material.

10.6. Hazardous decomposition products

Carbon monoxide, carbon dioxide and unburned hydrocarbons (smoke)., Irritant, caustic, flammable, noxious/toxic gases and vapors can develop in the case of fire and decomposition., Acrid smoke and irritating fumes.

11. TOXICOLOGICAL INFORMATION

11.1. Information on toxicological effects

No toxicological studies are available on the mixture.

carcinogenicity assessment NTP: No component of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.

IARC: No component of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.

OSHA: No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by OSHA.

Toxicological information on components

Methyl ethyl ketone peroxide

Acute oral toxicity LD50 Oral Rat(male): 1017 mg/kg

Skin irritation Causes severe skin burns and eye damage.
Causes burns.

Eye irritation Causes serious eye damage.
Risk of serious damage to eyes.

Dimethyl phthalate

Acute oral toxicity LD50 Oral Rat: 8200 mg/kg
 Acute inhalation toxicity LC50 : 10.4 mg/l / 6 h
 Assessment: H332: Harmful if inhaled
 Acute dermal toxicity LD50 Dermal Rat: > 12000 mg/kg
 Skin irritation No skin irritation
 Eye irritation No eye irritation
 Sensitization Not sensitizing.

Phlegmatizer

Acute oral toxicity LD50 Oral Rat(female): > 2000 mg/kg
 Acute inhalation toxicity LCLo Rat: > 0.12 mg/l / 6 h
 Acute dermal toxicity LD50 Dermal Rat(male/female): > 2000 mg/kg
 Skin irritation No skin irritation
 Eye irritation No eye irritation

Hydrogen peroxide

Acute oral toxicity LD50 Oral Rat(male): 1026 mg/kg
 Test substance: Hydrogen peroxide >= 50%
 LD50 Oral Rat(female): 693.7 mg/kg
 Test substance: Hydrogen peroxide >= 50%
 Assessment: Harmful if inhaled.
 Acute inhalation toxicity Assessment:
 Acute dermal toxicity LD50 Dermal Rat(male and female): > 2000 mg/kg
 Skin irritation corrosive
 Eye irritation corrosive
 Sensitization Not sensitizing.
 Assessment of STOT single exposure Assessment: May cause respiratory irritation.

Methyl ethyl ketone

Acute oral toxicity LD50 Oral Rat: 2737 mg/kg
 Acute inhalation toxicity LC50 Rat: 23500 mg/l / 8 h
 Acute dermal toxicity LD50 Rabbit: 6480 mg/kg
 Eye irritation Irritating to eyes.
 Assessment of STOT single exposure Target Organs: Central nervous system
 Assessment: May cause drowsiness or dizziness.
 Mutagenicity assessment This product may cause mutagenic effects.

12. ECOLOGICAL INFORMATION**12.1. Toxicity**

Toxicity to fish There is no data available for this product.
 Toxicity in aquatic invertebrates No data is available on the product itself.
 Toxicity to algae No data is available on the product itself.

12.2. Persistence and degradability

Biodegradability no data available

12.3. Bioaccumulative potential

Bioaccumulation no data available

12.4. Mobility in soil

Mobility No data available

12.5. Other adverse effects

Further Information Avoid release to the environment.

13. DISPOSAL CONSIDERATIONS

13.1. Waste treatment methods

Product

Waste must be disposed of in accordance with federal, state and local regulations. Incineration is the preferred method of disposal. Contact Orca Composites for additional information. Empty containers must be handled with care due to product residue. **DO NOT HEAT OR CUT THE EMPTY CONTAINER WITH ELECTRIC OR GAS TORCH.**

Uncleaned packaging

Packaging material should be recycled or disposed of in accordance with federal, state and local regulations.

14. TRANSPORT INFORMATION

D.O.T. Road/Rail

14.1. UN number:	UN 3105
14.2. UN proper shipping name:	Organic peroxide type D, liquid(Methyl ethyl ketone peroxide 5.2
14.3. Transport hazard class(s):	peroxide 5.2
14.4. Packing group:	II
14.5. Environmental hazards (Marine pollutant):	--
14.6. Special precautions for user:	No

Air transport ICAO-TI/IATA-DGR

14.1. UN number:	UN 3105
14.2. UN proper shipping name:	Organic peroxide type D, liquid(Methyl ethyl ketone peroxide <= 45%)
14.3. Transport hazard class(es):	5.2
14.4. Packing group:	--
14.5. Environmental hazards:	--
14.6 Special precautions for user: Yes IATA-C: ERG-Code 5L	

Must be protected from direct sunlight and stored away from all sources of heat in a well- ventilated area.

IATA-P: ERG-Code 5L

Must be protected from direct sunlight and stored away from all sources of heat in a well- ventilated area.

14.1. UN number:	UN 3105
14.2. UN proper shipping name:	ORGANIC PEROXIDE TYPE D, LIQUID(Methyl ethyl ketone peroxide <= 45%)
14.3. Transport hazard class(es):	5.2
14.4. Packing group:	--
14.5. Environmental hazards (Marine pollutant):	--
14.6 Special precautions for user: Yes EMS: F-J,S-R	
"Separated from" acids and alkalis. Protected from sources of heat	
14.7. Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code for transport approval see regulatory information	

15. REGULATORY INFORMATION

US Federal Regulations

OSHA

If listed below, chemical specific standards apply to the product or components: None listed

Clean Air Act Section (112)

If listed below, components present at or above the minimum level are hazardous air pollutants: Dimethyl phthalate CAS-No.

131-11-3

CERCLA Reportable Quantities

If listed below, a reportable quantity (RQ) applies to the product based on the percent of the named component:

Methyl ethyl ketone peroxide

CAS-No. 1338-23-4

Reportable Quantity 29 lbs

SARA Title III Section 311/312 Hazard Categories

The product meets the criteria only for the listed hazard classes: Acute health hazard; Fire hazard

SARA Title III Section 313 Reportable Substances

If listed below, components 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: None listed

Toxic Substances Control Act (TSCA)

If listed below, non-proprietary substances are subject to export notification under Section 12 (b) of TSCA: None listed

State Regulations

California Proposition 65

A warning under the California Drinking Water Act is required only if listed below: None listed

International Chemical Inventory Status

Unless otherwise noted, this product is in compliance with the inventory listing of the countries shown below. For information on listing for countries not shown, contact the Product Regulatory Services Department.

Europe (EINECS/ELINCS)	listed/registered
USA (TSCA)	listed/registered
Canada (DSL)	listed/registered
Australia (AICS)	listed/registered
Japan (MITI)	listed/registered
Korea (TCCL)	listed/registered
Philippines (PICCS)	not listed/registered
China	listed/registered
New Zealand	not listed/registered

An employer using HMIS/NFPA labeling must through training ensure that its employees are fully aware of the hazards of the chemicals used.

HMIS Ratings

Health :	3
Flammability :	2
Physical Hazard :	2

NFPA Ratings

Health :	3
Flammability :	2
Reactivity :	2

16. OTHER INFORMATION

. This version replaces all previous versions.

The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text.

Legend

ACC	American Chemistry Council
ACGIH	American Conference of Governmental Industrial Hygienists
ACS	Advisory Committee on Sustainability
ADI	Acceptable Daily Intake
ASTM	American Society for Testing and Materials
ATP	Adaptation to Technical Progress
BCF	Bio-concentration factor
BOD	Biochemical oxygen demand
c.c.	closed cup
CAO	Cargo Aircraft Only
Carc	Carcinogen
CAS	Chemical Abstract Services
CDN	Canada
CEPA	Canadian Environmental Protection Act
CERCLA	Comprehensive Environmental Response – Compensation and Liability Act
CFR	Code of Federal Regulations
CMR	carcinogenic-mutagenic-toxic for reproduction
COD	Chemical oxygen demand
DIN	German Institute for Standardization
DMEL	Derived minimum effect level
DNEL	Derived no effect level
DOT	Department of Transportation
EC50	half maximal effective concentration
EPA	Environmental Protection Agency
ErC50	Reduction of Growth Rate
ERG	Emergency Response Guide Book
FDA	Food and Drug Administration
GHS	Globally Harmonized System of Classification and Labelling of Chemicals (GHS)
GLP	Good Laboratory Practice
GMO	Genetic Modified Organism
HCS	Hazard Communication Standard
HMIS	Hazardous Materials Identification System
IARC	International Agency for Research on Cancer
IATA	International Air Transport Association
IBC	Intermediate Bulk Container
ICAO -TI	International Civil Aviation Organization- Technical Instructions
ICCA	International Council of Chemical Association
ID	Identification number
IMDG	International Maritime Dangerous Goods
IUPAC	International Union of Pure and Applied Chemistry
ISO	International Organization For Standardization
LC50	50 % Lethal Concentration
LD50	50 % Lethal Dose
L(E)C50	LC50 or EC50
LOAEL	Lowest observed adverse effect level
LOEL	Lowest observed effect level
MARPOL	International Convention for the Prevention of Pollution from Ships
NFPA	National Fire Protection Association
NOAEL	No observed adverse effect level
NOEC	no observed effect concentration
NOEL	no observed effect level
o. c.	open cup
OECD	Organization for Economic Cooperation and Development
OEL	Occupational Exposure Limit
OSHA	Occupational Safety and Health Administration
PBT	Persistent, bio-accumulative, toxic
PEC	Predicted effect concentration
PNEC	Predicted no effect concentration
RQ	Reportable Quantity
SDS	Safety Data Sheet
STOT	Specific Target Organ Toxicity
UN	United Nations

vPvB	very persistent, very bioaccumulative
voc	volatile organic compounds
WHMIS	Workplace Hazardous Materials Information System
WHO	World Health Organization

