



ChemShield 5631 Activator, Side B

MATERIAL SAFETY DATA SHEET (ChemShield 5631 Side-B, ACTIVATOR)

EMERGENCY CONTACT: (864) 680-1547

SECTION I. IDENTIFICATION

PRODUCT NAME: *ChemShield 5631 ACTIVATOR, Side B*
DATE: JULY 1, 2004
PRODUCT CLASS: Methyl Ethyl Ketone Peroxide
MANUFACTURER: Wolverine Coatings Corp., 204 Wellesley Drive, Spartanburg, SC 29307
TELEPHONE: (864) 342-9292

IMPORTANT: This material will not be sold for use in products for which prolonged contact with mucous membranes, abraded skin, or implantation within the human body is specifically intended. Because of the wide range of such potential uses, Wolverine Coatings Corporation is not able to recommend this material as safe and effective for such uses and assumes no liability for any such uses.

HAZARD STATEMENT: This material safety data sheet (MSDS) has been prepared in compliance with the Federal OSHA Hazard Communication Standard 29 CFR 1910.1200. This product is considered a hazardous chemical under that standard.

EMERGENCY OVERVIEW

DANGER! Organic peroxide. Causes eye burns. May cause blindness. Harmful if swallowed. Causes skin irritation. May cause respiratory tract irritation.
May cause allergic skin reaction.

EMERGENCY AND FIRST AID PROCEDURES:

EYES - Immediately flush eyes with large quantities of running water. for at least 15 minutes. Hold eyelids apart to ensure rinsing of the entire eye surface and lids with water. If redness, blurred vision or swelling persists, get medical attention.

SKIN - Immediately remove contaminated clothing and shoes under a safety shower. Wash affected areas thoroughly with plenty of water. Get immediate medical attention. Wash clothing before re-use, and destroy contaminated shoes.

INGESTION Do not induce vomiting. Drink large amounts of water or milk. Do not give liquids to a drowsy, convulsing or unconscious person. If vomiting occurs spontaneously, keep head below hips to prevent aspiration. Get immediate medical attention.

INHALATION Remove victim to fresh air. Keep warm and quiet. If not breathing, give artificial respiration. If breathing is difficult, give oxygen by trained personnel. Get immediate medical attention.

HMIS HEALTH: 3

PHYSICAL FORM:

COLOR:

ODOR:

HAZARDS:

FLAMMABILITY: 2

MOBILE LIQUID

COLORLESS

PUNGENT

Severe Skin Irritant. Causes Severe Eye Corrosion. Moderately Toxic by Inhalation. Ingestion May Cause Changes in Function of Esophagus, Nausea, Vomiting, and Other Gastrointestinal Effects.

REACTIVITY: 2

EXTINGUISHING MEDIA: CO₂, FOAM, DRY CHEMICAL, WATER FOG.

CAS CHEMICAL NAME: MIXTURE

SYNONYMS: NONE

CHEMICAL FAMILY: KETONE PEROXIDE – ORGANIC PEROXIDE

EMPIRICAL FORMULA: MIXTURE

INTENDED USE: RESIN CATALYST

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SECTION II. INGREDIENTS

OCCUPATIONAL EXPOSURE LIMITS:

INGREDIENTS	CAS #	WT %	OSHA PEL	OSHA STEL	ACGIH/TWA	ACGIH/CEILING
2,2,4-Trimethyl-1,3-pentanediol diisobutyrate	6846-50-0	58	Y	25PPM 121 MG/M ³	NE	NE
Methyl ethyl ketone Peroxide(s)	1338-23-4	32-34	Y	NE	NE	0.2PPM 1.5 MG/M ³
Hexylene glycol	107-41-5	6	Y	NE	NE	NE
Methyl ethyl ketone	78-93-3	1-2	220ppm 590 mg/m ³	NE	220ppm 590mg/m ³	885 mg/m ³ 300 ppm
Hydrogen peroxide	7722-84-1	.7	1ppm 1.4mg/m ³	NE	1ppm 1.4mg/m ³	NE
Water	7732-18-5	<.7	N		NE	NE

The substance(s) marked with a "Y" in the OSHA column are identified as hazardous chemicals according to the criteria of the OSHA Communication Standard (29 CFR 1910.1200).

This material is classified as hazardous under Federal OSHA regulation.

The components of this product are either on the TSCA Inventory list or exempt as impurities.

SECTION III. PHYSICAL DATA & CHEMICAL PROPERTIES

APPEARANCE AND ODOR:	CLEAR, OILY LIQUID; KETONE ODOR.
PH:	NOT APPLICABLE
VAPOR PRESSURE (MM HG @ 68°F):	NOT DETERMINED
VAPOR DENSITY (AIR = 1):	NOT DETERMINED
BOILING POINT:	NOT DETERMINED
MELTING POINT:	NOT DETERMINED
SOLUBILITY IN WATER:	SLIGHTLY
SPECIFIC GRAVITY:	1.004@ 77°F (25°C)
EVAPORATION RATE:	NOT DETERMINED
PERCENT VOLATILE:	98% VOC
SADT:	169°F (75°C) (45 LB CTN.)
ACTIVE OXYGEN CONTENT:	8.7-9.0%

SECTION IV. FIRE AND EXPLOSION DATA

FLASHPOINT: 160 DEGREES F (71 DEGREES C)

EXTINGUISHING MEDIA: CO₂, FOAM, DRY CHEMICAL, WATER FOG.

SPECIAL FIRE FIGHTING PROCEDURES: Fight fire with large amounts of water from a safe distance. Use water spray to cool containers exposed to fire. Fire fighters and others who may be exposed to products of combustion should wear full fire-fighting turn-out gear (full Bunker Gear) and self-contained breathing apparatus (pressure demand NIOSH approved or equivalent). Fire fighting equipment should be thoroughly decontaminated after use. After a fire, wait until the material has cooled to room temperature before initiating cleanup activities.

FIRE AND EXPLOSION HAZARDS: Contact with incompatible materials or exposure to temperatures exceeding the SADT may result in a self-accelerating decomposition reaction with release of flammable vapors that may auto ignite.

SECTION V. REACTIVITY DATA, TOXICOLOGICAL PROPERTIES, & ECOLOGICAL INFORMATION

REACTIVITY:

CHEMICAL STABILITY

This material is chemically unstable and should only be handled under specified conditions. See handling and storage section of this MSDS for specified conditions.

CONDITIONS TO AVOID

Contamination. Direct sunlight. Open flames. Prolonged storage above 100°F. Storage near flammable or combustible areas.

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INCOMPATIBILITY (MATERIALS TO AVOID)

Contact with strong acids, alkalis, oxidizers, transition metal salts, promoters/accelerators & reducing agents may result in violent decomposition reaction or product degradation. (See section 16)

HAZARDOUS DECOMPOSITION PRODUCTS (FROM BURNING, HEATING OR REACTION WITH OTHER MATERIALS)

Temperatures at or above the SADT can result in the release of hazardous decomposition products, which are flammable and may auto ignite.

HAZARDOUS POLYMERIZATION

Will not occur.

CONDITIONS TO AVOID

Prevent vapor accumulation. Avoid heat, sparks, and open flames.

TOXICOLOGY:

ACUTE ORAL TOXICITY (LD50, RAT)

MEKP	484 MG/KG
MEK	2737 MG/KG
DIMETHYL PHTHALATE	6800 MG/KG
HYDROGEN PEROXIDE	376 MG/KG

ACUTE DERMAL TOXICITY (LD50, RABBIT)

MEKP	500 MG/KG
MEK	6480 MG/KG
HYDROGEN PEROXIDE	4060 MG/KG

ACUTE INHALATION TOXICITY (LC50, RAT)

MEKP	200 PPM – 4 HR.
MEK	2350 MG/M ³ – 8 HR.
DIMETHYL PHTHALATE	9300 MG.M ³ – 6.5 HR.

OTHER ACUTE EFFECTS

NONE

IRRITATION EFFECTS DATA

Eye irritation: minimal to severe (rabbit).

Skin irritation: slight erythema (rabbit, 24 hours).

CHRONIC/SUBCHRONIC DATA

Reproductive & developmental toxicity: methyl ethyl ketone has been shown to cause minor developmental effects (delayed ossification) to the fetuses when female pregnant rats were exposed to vapors of 3,000 ppm, fifteen times the occupational exposure limit.

Other testing: methyl ethyl ketone may shorten the time of onset of liver and kidney toxicity of haloalkane solvents and peripheral neuropathy caused by materials such as n-hexane or methyl n-butyl ketone. However, MEK alone has not been shown to cause peripheral neuropathy.

ADDITIONAL INFORMATION

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

ECOLOGICAL INFORMATION:

ECOTOXICOLOGICAL INFORMATION

Data on this material and/or its components are summarized below.

METHYL ETHYL KETONE PEROXIDE(S)

This material is slightly toxic to guppies (96-HR LC50 44.2MG/L).

2,2,4-TRIMETHYL-1,3-PENTANEDIOL DIISOBUTYRATE

This material is no more than moderately toxic to fathead minnow, ramshorn snails, aquatic earthworms, sideswimmers, pill bugs and flatworms (96-HR LC50S 1.55 MG/L), and daphnids (96-HR EC50 1.46 MG/L).

HEXYLENE GLYCOL

This material has been reported to be practically non-toxic to a variety of aquatic organisms by acute toxicity testing. Freshwater fish including rainbow trout, bluegill sunfish, fathead minnow, mosquito fish, goldfish and channel catfish had lc50 values in excess of 1,000 mg/l and generally were in the range of 8,000 to 10,000 mg/l.

Aquatic invertebrates such as daphnia and crayfish had ec50 values greater than 2,800 mg/l.

METHYL ETHYL KETONE

This material is practically non-toxic to goldfish, brine shrimp, daphnia magna, fathead minnow, mosquito fish, bluegill sunfish and golden ORFE (LC50S 1,000 MG/L).

This material inhibits fungal growth and is reported to be bacteriostatic to several microorganisms (escherichia

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coli, salmonella typhimurium, staphylococcus aureus, leuconostoc citrovorum and streptococcus thermophilus) at levels of 10-100 MG/L. Growth inhibition has also been reported for freshwater algae at levels ranging from 120 MG/L (blue-green algae) to 4,300 MG/L (green algae).

CHEMICAL FATE INFORMATION

Data on this material and/or its components are summarized below.

METHYL ETHYL KETONE PEROXIDE(S)

This material was reported to be readily biodegradable in a closed bottle system. An EC50 of 16 MG/L was reported in an activated sludge respiration inhibition test.

2,2,4-TRIMETHYL-1,3-PENTANEDIOL DIISOBUTYRATE

In a 28-day modified sturm test, this material was found to undergo 32-59% degradation to CO². The bioconcentration factor without metabolism was estimated to be 670 and with metabolism 1-40. The log POW is estimated to be 4.1.

HEXYLENE GLYCOL

Chemical oxygen demand (cod) and biological oxygen demand (BOD) indicated that this material is readily biodegraded.

METHYL ETHYL KETONE

Extensive data suggests that this material is readily biodegradable. It is non-toxic to sludge microorganisms at concentrations up to 800 UG/L.

SECTION VI. HEALTH HAZARDOUS DATA

POTENTIAL HEALTH EFFECTS: skin contact and inhalation are expected to be the primary routes of exposure to this material. Based on the composition, it is anticipated to be moderately toxic if swallowed, slightly toxic if absorbed through skin, practically non-toxic if inhaled, severely irritating to skin and corrosive to eyes. Prolonged or repeated contact may cause an allergic skin reaction. Overexposure to vapor may lead to digestive disorders, narcosis and central nervous system (CNS) effects such as headache, dizziness, loss of coordination, loss of consciousness or convulsions. If swallowed, this material may cause CNS effects as noted above, irritation of the mouth, throat and stomach and, in severe cases, death.

PRIMARY RATES OF EXPOSURE:

ORAL: LD50 RATS 750-1080 MG/KG (COMPONENTS)

DERMAL: LD50 MG/KG (COMPONENTS) RATS 1110-1280

IRRITATION:

SKIN: (RABBIT) EXTREME CORROSIVE

EYE: (RABBIT) REGARD AS CORROSIVE

SENSITIZATION: POTENTIAL SENSITIZER

INHALATION: HARMFUL IF INHALED - RAT LCLO= 750 MG/M³/10 MIN.

EFFECTS OF OVEREXPOSURE: Overexposure to this material can result in severe skin, eye, and respiratory irritation, and prolonged contact will result in chemical burn. It is a potent skin sensitizer in animal studies. Components in this product can cause CNS depression, convulsions, drowsiness, slurred speech, stupor, headaches, dizziness, nausea, and depression of the respiratory center. Also, liver and kidney effects have been reported for humans along with effects on the blood especially causing anemia.

MEDICAL CONDITIONS AGGRAVATED BY EXPOSURE: Asthma, chronic respiratory disease, skin, and eye conditions.

SECTION VII. SPILL OR LEAK PROCEDURES

Use inert, non-combustible absorbent material. Sweep or scoop up using non-sparking tools. Wet down and dispose of immediately. Consult a regulatory specialist to determine appropriate state or local reporting requirements for assistance in waste characterization and/or hazardous waste disposal and other requirements listed in pertinent environmental permits.

SECTION VIII. SPECIAL PROTECTION INFORMATION

EYE / FACE PROTECTION: Wear chemical goggles or face shield and have eye-flushing equipment immediately available

SKIN PROTECTION: Wear chemical resistant gloves and chemical resistant clothing such as a rubber apron such as PVA or butyl when splashing may occur.

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RESPIRATORY PROTECTION: If engineering controls do not maintain airborne concentrations to a level that is adequate to protect worker health, a NIOSH/MSHA approved air-purifying respirator with organic vapor cartridge or canister will be necessary. Use a positive pressure air-supplied respirator if exposure levels are not known, or during other circumstances where air purifying respirators may not provide adequate protection.

PROTECTIVE CLOTHING: If splashing is likely, wear impervious clothing and boots to prevent repeated or prolonged skin limits.

ENGINEERING CONTROLS: Local ventilation should be provided to maintain concentrations below recommended exposure limits.

WORK AND HYGIENIC PRACTICES: Provide readily accessible eye wash stations and safety showers. Wash at the end of each work shift. Wash before eating, smoking or using the toilet. Promptly remove clothing that becomes contaminated.

AIRBORNE EXPOSURE GUIDELINES FOR INGREDIENTS:

<u>EXPOSURE LIMIT</u>	<u>VALUE</u>
HEXYLENE GLYCOL	
ACGIH STEL	25 PPM 121 MG/M ³
HYDROGEN PEROXIDE	
ACGIH TWA	1 PPM 1.4 MG/ M ³
OSHA TWA PEL	1 PPM 1.4 MG/ M ³
METHYL ETHYL KETONE	
ACGIH CEILING	885 MG/M ³ 300 PPM
ACGIH TWA	200 PPM 590 MG/ M ³
OSHA TWA PEL	200 PPM 590 MG/M ³
METHYL ETHYL KETONE PEROXIDE(S)	
ACGIH STEL	0.2 PPM 1.5 MG/M ³

-Only those components with exposure limits are printed in this section.

-Skin contact limits designated with a "Y" above have skin contact effect. Air sampling alone is insufficient to accurately quantitate exposure. Measures to prevent significant cutaneous absorption may be required.

-ACGIH Sensitizer designator with a value of "Y" above means that exposure to this material may cause allergic reactions.

SECTION IX. SPECIAL PRECAUTIONS

HMIS HEALTH: 3

FIRE: 2

REACTIVITY: 2

STORING PRECAUTIONS: store below 100F/38C to maintain stability and active oxygen content. Detached storage is preferred. Store out of direct sunlight in a cool well-ventilated place. Store away from combustibles and incompatible materials. Refer also to national fire protection agency (NFPA) CODE 432, code for the storage of organic peroxide formulations.

HANDLING PRECAUTIONS: Contact with incompatible materials or exposure to temperatures exceeding SADT (see section 9) may result in a self-accelerating decomposition reaction with release of flammable vapors, which may auto, ignite. Keep away from heat sparks and flame. Avoid contamination. Use only with adequate ventilation. Use explosion proof equipment. Keep container closed. Do not reuse container as it may retain hazardous product residue. Wash thoroughly after handling. Do not get in eyes, on skin or on clothing. Avoid breathing vapor or mist. Do not taste or swallow. Avoid prolonged or repeated contact with skin.

TRANSPORT INFORMATION: DOT NON-BULK SHIPPING NAME: Organic peroxide type D, liquid, (methyl ethyl ketone peroxide), <45% / 5.2 / UN3105 / PG II / ERG NO. 145

DOT BULK SHIPPING NAME: organic peroxide type d, liquid, (methyl ethyl ketone peroxide), <45% / 5.2 / UN3105 / PG II / ERG NO. 145

IMO SHIPPING NAME: REFER TO BILL OF LADING

ICAO/IATA SHIPPING DATA: ORGANIC PEROXIDE TYPE D, LIQUID, (METHYL ETHYL KETONE PEROXIDE), <45% / 5.2 / UN3105 / PG II / ERG NO. 145

RQ = METHYL ETHYL KETONE PEROXIDE(S) = 10 LBS

DISPOSAL CONSIDERATIONS: Dispose of in accordance with federal, state and local regulations. Dilution

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followed by incineration is the preferred method. Dilution ratio of 10:1 8N a clean, compatible, combustible solvent (i.e., fuel oil #2, mineral oil) will reduce reactivity hazard during incineration and transportation.

SECTION X. REGULATORY INFORMATION

HAZARD CATEGORIES UNDER CRITERIA OF SARA TITLE III RULES (40 CFR PART 370)

IMMEDIATE (ACUTE) HEALTH	Y	FIRE	Y
DELAYED (CHRONIC) HEALTH	N	REACTIVE	Y
SUDDEN RELEASE OF PRESSURE	N		

The components of this product are either on the TSCA inventory list or exempt as impurities.

INGREDIENT RELATED REGULATORY INFORMATION:

SARA REPORTABLE QUANTITIES TPQ	CERCLA RQ	SARA
HEXYLENE GLYCOL	NE	
HYDROGEN PEROXIDE	NE	1000
WATER	NE	
METHYL ETHYL KETONE	5000 LBS.	
METHYL ETHYL KETONE PEROXIDE(S)	10 LBS.	
2,2-4 TRIMETHYL-1,3-PENTANEDIOL DIISOBUTYRATE	NE	

SARA TITLE III, SECTION 313

This product does contain chemical(s) that are defined as toxic chemicals under and 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. See Section 2
Methyl Ethyl Ketone

SARA TITLE III, SECTION 302

This product does contain chemical(s), as indicated below, currently on the extremely hazardous substance list, Section 302, Sara Title III. See Section 2 for further details regarding concentrations and registry numbers.
Hydrogen Peroxide

MASSACHUSETTS RIGHT TO KNOW

This product does contain the following chemical(s), as indicated below, currently on the Massachusetts right to know substance list.

HEXYLENE GLYCOL
HYDROGEN PEROXIDE
METHYL ETHYL KETONE
METHYL ETHYL KETONE PEROXIDE(S)

NEW JERSEY RIGHT TO KNOW

This product does contain the following chemical(s), as indicated below, currently on the New Jersey right to know substance list.

HEXYLENE GLYCOL
HYDROGEN PEROXIDE
METHYL ETHYL KETONE
METHYL ETHYL KETONE PEROXIDE(S)

PENNSYLVANIA ENVIRONMENTAL HAZARD

This product does contain the following chemical(s), as indicated below, currently on the Pennsylvania environmental hazard list.

HYDROGEN PEROXIDE
METHYL ETHYL KETONE
METHYL ETHYL KETONE PEROXIDE(S)

PENNSYLVANIA RIGHT TO KNOW

This product does contain the following chemical(s), as indicated below, currently on the Pennsylvania hazardous substance list.

HEXYLENE GLYCOL
HYDROGEN PEROXIDE

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METHYL ETHYL KETONE
METHYL ETHYL KETONE PEROXIDE(S)

OTHER INFORMATION

MISCELLANEOUS: Additional incompatibility data: rust, copper, and brass are not compatible with MEK peroxide. 316 stainless steel, glass, polyethylene, polytetrafluoroethylene and polypropylene are preferred materials for contact with MEK peroxide. Acetone may react with residual hydrogen peroxide to form insoluble shock-sensitive acetone peroxide crystals.

ISSUE DATE: 07/2004

CONTACT: PRODUCT SAFETY DIRECTOR.

The information and recommendations contained herein are accurate to the best of our knowledge and belief. Conditions of handling and use are beyond our control, thus we make no guarantee of results and assume no liability for damages. All chemicals may present unknown health hazards and should be used with caution. Although certain hazards are described here, we cannot guarantee that only these exist. Determination of suitability of the chemical is the sole responsibility of the user. Chemical users should satisfy themselves that conditions and methods of use assure that the chemical is used safely. No representations or warranties, either expressed or implied of merchantability, fitness for a particular purpose or any other nature, are made hereunder with respect to the information herein, or to the chemical to which the user refers.