



Material Safety Data Sheet

Issuing Date 20-Nov-2014

Revision Date 04-Sep-2014

Revision Number 6

1. PRODUCT AND COMPANY IDENTIFICATION

Product Name 5191
Product Code(s) 5191
Recommended Use Additive

Supplier Address

Markem-Image
150 Congress St. PO Box 2100
Keene, NH 03431
(603) 352-1130

MARKEM-IMAJE USA
100 Chastain Center Blvd
Suite 165

Kennesaw, GA 30144 - USA
Phone: 770-421-7700
Fax: 770-421-7702

Chemical Emergency Phone Number

Chemtrec: 1-800-424-9300 for US/ 703-527-3887 outside US

2. COMPOSITION/INFORMATION ON INGREDIENTS

Chemical Name	CAS-No	Weight %
Methyl ethyl ketone	78-93-3	60-100

Percentages may not equal 100% since only hazardous components are listed.

3. HAZARDS IDENTIFICATION

DANGER!

Emergency Overview

EXTREMELY FLAMMABLE LIQUID AND VAPOR. VAPOR MAY CAUSE FLASH FIRE
FLAMMABLE LIQUID AND VAPOR

Irritating to eyes

Vapors may be irritating to eyes, nose, throat, and lungs

May cause central nervous system depression

Color Pink.

Physical State Liquid.

Odor Solvent.

Potential Health Effects

Principle Routes of Exposure

Inhalation. Skin contact. Eye contact.

Acute Toxicity

Eyes

Skin

Moderately irritating to the eyes. May cause irritation.

May cause skin irritation and/or dermatitis. Repeated exposure may cause skin dryness or cracking. Prolonged skin contact may defat the skin and produce dermatitis. May cause irritation.

Inhalation

May cause irritation of respiratory tract. May be harmful if inhaled.

Ingestion	May be harmful if swallowed . Ingestion may cause irritation to mucous membranes.			
Chronic Effects	Repeated or prolonged exposure may cause irritation of eyes and skin. Repeated and prolonged exposure to solvents may cause brain and nervous system damage. Avoid repeated exposure.			
Aggravated Medical Conditions	Central nervous system. Pre-existing eye disorders. Skin disorders. Respiratory disorders.			
Interactions with Other Chemicals	Use of alcoholic beverages may enhance toxic effects.			
Environmental Hazard	See Section 12 for additional Ecological Information			
NFPA	Health Hazard 2	Flammability 3	Stability 0	Reactivity -
HMIS	Health Hazard 2	Flammability 3	Reactivity 0	

4. FIRST AID MEASURES

General Advice	Call 911 or emergency medical service. Remove and isolate contaminated clothing and shoes.
Eye Contact	In case of contact with substance, immediately flush skin or eyes with running water for at least 20 minutes.
Skin Contact	Wash skin with soap and water.
Inhalation	Move victim to fresh air. Apply artificial respiration if victim is not breathing. Administer oxygen if breathing is difficult.
Ingestion	Immediate medical attention is not required. Rinse mouth. Drink plenty of water. Do NOT induce vomiting. Clean mouth with water and afterwards drink plenty of water. Never give anything by mouth to an unconscious person. Consult a physician.
Notes to Physician	Keep victim warm and quiet.
Protection of First-aiders	Ensure that medical personnel are aware of the material(s) involved, and take precautions to protect themselves.

5. FIRE-FIGHTING MEASURES

Suitable Extinguishing Media	Dry chemical, CO ₂ , water spray or alcohol-resistant foam.
Unsuitable Extinguishing Media	CAUTION: All these products have a very low flash point.
Specific Hazards Arising from the Chemical	Vapors may form explosive mixtures with air. Vapors may travel to source of ignition and flash back. Most vapors are heavier than air. Vapor explosion hazard indoors, outdoors or in sewers. Those substances designated with a "P" may polymerize explosively when heated or involved in a fire. Runoff to sewer may create fire or explosion hazard.
Protective Equipment and Precautions for Firefighters	Move containers from fire area if you can do it without risk.

6. ACCIDENTAL RELEASE MEASURES

Personal Precautions	ELIMINATE all ignition sources (no smoking, flares, sparks or flames in immediate area). All equipment used when handling the product must be grounded. Do not touch or walk through spilled material. Stop leak if you can do it without risk.
Environmental Precautions	Prevent entry into waterways, sewers, basements or confined areas.
Methods for Containment	A vapor suppressing foam may be used to reduce vapors. Absorb or cover with dry earth, sand or other non-combustible material and transfer to containers.
Methods for Cleaning Up	Use clean non-sparking tools to collect absorbed material. Dike far ahead of liquid spill for later disposal.
Other Information	Water spray may reduce vapor; but may not prevent ignition in closed spaces.

7. HANDLING AND STORAGE

Handling	Ensure adequate ventilation. Keep away from open flames, hot surfaces and sources of ignition. Take precautionary measures against static discharges. Use only in an area containing flame proof equipment. To avoid ignition of vapors by static electricity discharge, all metal parts of the equipment must be grounded. Use only in area provided with appropriate exhaust ventilation. Wear personal protective equipment. Do not breathe vapors or spray mist. Avoid contact with skin, eyes and clothing.
Storage	Keep tightly closed in a dry and cool place. Keep in properly labeled containers. Keep containers tightly closed in a cool, well-ventilated place. Keep away from heat and sources of ignition. Keep away from heat. Protect from light.

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

Exposure Guidelines

Chemical Name	ACGIH TLV	OSHA PEL	NIOSH IDLH
Methyl ethyl ketone 78-93-3	STEL: 300 ppm TWA: 200 ppm	TWA: 200 ppm TWA: 590 mg/m ³ TWA: 200 ppm	IDLH: 3000 ppm TWA: 200 ppm TWA: 590 mg/m ³ STEL: 300 ppm STEL: 885 mg/m ³

NIOSH IDLH: Immediately Dangerous to Life or Health.

S*: Skin Notation

Other Exposure Guidelines

Vacated limits revoked by the Court of Appeals decision in AFL-CIO v.

Engineering Measures

Ensure adequate ventilation. Use explosion-proof equipment.

Personal Protective Equipment

Eye/Face Protection

Tightly fitting safety goggles. Face-shield.

Skin and Body Protection

Antistatic boots. Wear fire/flammable resistant/retardant clothing. Impervious gloves. Long sleeved clothing. Chemical resistant apron. Apron.

Respiratory Protection

If exposure limits are exceeded or irritation is experienced, NIOSH/MSHA approved respiratory protection should be worn

Hygiene Measures

When using, do not eat, drink or smoke. Provide regular cleaning of equipment, work area and clothing.



Glasses



Gloves



Boots



Face Mask

9. PHYSICAL AND CHEMICAL PROPERTIES

Color	Pink.	Odor	Solvent.
Physical State	Liquid	pH	Not determined
Flash Point	>16°F / >-9°C	Boiling Point/Range	75°C / 167°F
Autoignition Temperature	500°C / 932°F	Melting Point/Range	-85°C / -121°F
Flammability Limits in Air	Not determined	Explosion Limits	Not determined
		Upper	11.5
		Lower	1.8
Specific Gravity	0.81	Solubility	Not determined
Evaporation Rate	Not determined	Vapor Pressure	Not determined
Vapor Density	Not determined	Liquid Density	6.67
VOC Content(%)	99.9998	VOC (lb/gal)	6.75297
VOC (g/l)	810.887044481909		

10. STABILITY AND REACTIVITY

Stability	Stable.
Incompatible Products	Incompatible with oxidizing agents. Incompatible with strong acids and bases.
Conditions to Avoid	Heat, flames and sparks.
Hazardous Decomposition Products	None.
Hazardous Polymerization	no.

11. TOXICOLOGICAL INFORMATION

Acute Toxicity

Component Information

Chemical Name	LD50 Oral	LD50 Dermal	LC50 Inhalation
Methyl ethyl ketone	2737 mg/kg (Rat)	6480 mg/kg (Rabbit)	

Chronic Toxicity

Chronic Toxicity	Repeated or prolonged exposure may cause irritation of eyes and skin. Repeated and prolonged exposure to solvents may cause brain and nervous system damage. Avoid repeated exposure.
Sensitization	Not determined
Mutagenic Effects	Not determined
Reproductive Toxicity	Not determined
Developmental Toxicity	Not determined
Teratogenic	Not determined
Target Organ Effects	Central nervous system (CNS), Eyes, Respiratory system, Skin.

12. ECOLOGICAL INFORMATION

Ecotoxicity

The environmental impact of this product has not been fully investigated

Chemical Name	Toxicity to Algae	Toxicity to Fish	Toxicity to Microorganisms	Daphnia Magna (Water Flea)
Methyl ethyl ketone		3130-3320: 96 h Pimephales promelas mg/L LC50 flow-through		4025 - 6440: 48 h Daphnia magna mg/L EC50 Static 5091: 48 h Daphnia magna mg/L EC50 520: 48 h Daphnia magna mg/L EC50

13. DISPOSAL CONSIDERATIONS

Waste Disposal Methods	Dispose of in accordance with local regulations. Should not be released into the environment. Can be landfilled or incinerated, when in compliance with local regulations. This material, as supplied, is a hazardous waste according to federal regulations (40 CFR 261).
Contaminated Packaging	Dispose of in accordance with local regulations. Empty containers should be taken for local recycling, recovery or waste disposal.

14. TRANSPORT INFORMATION

DOT

Proper Shipping Name	METHYL ETHYL KETONE
Hazard Class	3
UN-No	UN1193
Packing Group	II
Description	CUST-METHYL ETHYL KE

IATA

UN-No	UN1193
Proper Shipping Name	Methyl ethyl ketone
Hazard Class	3
Packing Group	II
ERG Code	3L

15. REGULATORY INFORMATION

International Inventories

TSCA	Complies
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Legend

TSCA - United States Toxic Substances Control Act Section 8(b) Inventory

DSL/NDSL - Canadian Domestic Substances List/Non-Domestic Substances List

U.S. Federal Regulations

SARA 313

Section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 (SARA). This product does not contain any chemicals which are subject to the reporting requirements of the Act and Title 40 of the Code of Federal Regulations, Part 372.

SARA 311/312 Hazard Categories

Acute Health Hazard	Yes
Chronic Health Hazard	No
Fire Hazard	Yes
Sudden Release of Pressure Hazard	No
Reactive Hazard	No

Clean Water Act

This product does not contain any substances regulated as pollutants pursuant to the Clean Water Act (40 CFR 122)

CERCLA

This material, as supplied, contains one or more substances regulated as a hazardous substance under the Comprehensive Environmental Response Compensation and Liability Act (CERCLA) (40 CFR 302):

Chemical Name	Hazardous Substances RQs	Extremely Hazardous Substances RQs	RQ
Methyl ethyl ketone	5000 lb		RQ 5000 lb final RQ RQ 2270 kg final RQ RQ 5000 lb final RQ

U.S. State Regulations

California Proposition 65

This product does not contain any Proposition 65 chemicals

U.S. State Right-to-Know Regulations

Chemical Name	Massachusetts	Pennsylvania	Illinois	Rhode Island
Methyl ethyl ketone	X	X	X	X

Chemical Name	New Jersey
Methyl ethyl ketone	X

International Regulations

Mexico - Grade

Serious risk, Grade 3

Chemical Name	Carcinogen Status	Exposure Limits
Methyl ethyl ketone		Mexico: TWA 200 ppm Mexico: TWA 590 mg/m ³ Mexico: TWA 200 ppm Mexico: STEL 300 ppm Mexico: STEL 885 mg/m ³

Canada

This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations (CPR) and the MSDS contains all the information required by the CPR

Chemical Name	NPRI
Methyl ethyl ketone	Part 1, Group 1 Substance Part 5 Substance Part 5, Individual Substance

16. OTHER INFORMATION

Prepared By Environmental and Safety Department
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Keene, NH 03431
(603) 352-1130

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Revision Note All.

General Disclaimer

The information provided on this MSDS is correct to the best of our knowledge, information and belief at the date of its publication

End of Safety Data Sheet