



## SAFETY DATA SHEET

**CADOX M-50A VR**

## 1. IDENTIFICATION OF THE SUBSTANCE/PREPARATION AND OF THE COMPANY/UNDERTAKING

<b>Product label name</b> Methyl ethyl ketone peroxide solution in aliphatic ester	
<b>Supplier</b> Akzo Nobel Polymer Chemicals LLC 525 West Van Buren Street Chicago, IL 60607-3823  www.akzonobel-polymerchemicals.com	
<b>Emergency telephone</b> + 1-914-693-6946 Dobbs Ferry, NY USA	<b>transportation emergency</b> CHEMTREC - USA: 1-800-424-9300 CANUTEC - CANADA: 1-613-996-6666
<b>Intended use</b> Curing agent	
<b>Date of last issue / Revision #</b> 2007/06/01 / 1.02	
<b>Chemical family</b> peroxides	

## 2. HAZARDS IDENTIFICATION

<b>Emergency overview</b> <b>DANGER!</b> ORGANIC PEROXIDE HEAT OR CONTAMINATION MAY CAUSE HAZARDOUS DECOMPOSITION COMBUSTIBLE LIQUID AND VAPOR CAUSES EYE AND SKIN BURNS MAY BE HARMFUL IF SWALLOWED May cause fire.	
<b>Appearance</b> red liquid with faint odor.	
<b>Health effects</b> Skin and eye contact and inhalation of vapor are the principal routes of exposure to this product. Skin; Causes burns. Eye; Causes burns. Causes injury to the cornea and eyelids. Risk of serious damage to eyes. Harmful if swallowed.	
<b>Carcinogenicity</b>	
<b>Description</b>	<b>Applicable</b>
IARC	no
NTP	no
OSHA	no
ACGIH	no

## 3. COMPOSITION/INFORMATION ON INGREDIENTS

Information on hazardous ingredients			
<b>Chemical description</b> Methyl ethyl ketone peroxide solution in aliphatic ester			
<b>Composition / information on ingredients</b>			
<b>Number</b>	<b>% w/w</b>	<b>CAS-number</b>	<b>Chemical name</b>
1	30 - 35	001338-23-4	Methyl ethyl ketone peroxide

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2	60 - 70	006846-50-0	2,2,4-Trimethyl-1,3-pentanediol diisobutanoate
3	0.0001 - 3	007722-84-1	Hydrogen peroxide
4	0.0001 - 2	000078-93-3	Methyl ethyl ketone
5	0.0001 - 2	007732-18-5	Water

**4. FIRST AID MEASURES**

**Symptoms and effects**

Harmful if swallowed. Causes burns. Causes injury to the cornea and eyelids. Risk of serious damage to eyes.

**First aid**

**General**

Call a physician immediately.

**Inhalation**

Remove to fresh air. If not breathing, give artificial respiration. Oxygen may additionally be given, by trained personnel, if it is available. Get medical attention immediately.

**Skin**

Immediately start continuous flushing of skin with water for at least 15 minutes, while removing contaminated clothing and shoes. Get medical attention immediately. Wash clothing before reuse. Thoroughly clean or destroy contaminated shoes.

**Eye**

Immediately start continuous flushing of eyes with water for at least 15 minutes. If easy to do, contact lenses should be removed during the flushing, by trained personnel. Hold the eyelids apart during the flushing to ensure rinsing the entire surface of the eye and lids with water. Get medical attention immediately.

**Ingestion**

DO NOT induce vomiting. Get medical attention immediately by calling a physician or a poison control center. If victim is conscious and alert, give a cupful of water. Never give anything by mouth to an unconscious or convulsing person. If vomiting occurs, the patient should lie on their left side while vomiting to reduce the risk of aspiration.

**Advice to physician**

Persons with pre-existing skin, eye, or respiratory disease may be at increased risk from the irritant or allergic properties of this material.

This material is severely corrosive to the eyes and may cause delayed keratitis. The normally prescribed 15 minute eye irrigation after exposure may be difficult because of the severe pain. The prior installation of a topical ocular anesthetic is essential to facilitate a comprehensive ocular lavage. If swallowed, do not induce vomiting. Give patient plenty of water to drink. Ingestion of this corrosive material may result in severe ulceration, inflammation, and possible perforation of the upper alimentary tract, with hemorrhage and fluid loss. Aspiration of this material during induced emesis can result in severe lung injury. Contact a Poison Control Center for additional treatment information. Treat any additional effects symptomatically.

**5. FIRE-FIGHTING MEASURES**

**Extinguishing media**

waterspray, alcohol resistant foam, sand, dry chemical powder, CO2.

**Unsuitable extinguishing media**

halones.

**Hazardous decomposition/ combustion products**

Carbon dioxide, Carbon monoxide, Water, Acetic acid, Formic acid, Propanoic acid, Methyl ethyl ketone

**Protective equipment**

Firefighters must wear fire resistant protective equipment. Wear approved respirator and protective gloves.



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**Other information**

Evacuate all non-essential personnel. Extinguish a small fire with powder or carbon dioxide then apply water to prevent re-ignition. Cool closed containers with water. Water used to extinguish a fire should not be allowed to enter the drainage system or water courses. After a fire, ventilate thoroughly the area and soak with water, clean the walls and metallic surfaces.

**Fire and explosion hazard**

CAUTION: reignition may occur. Decomposition under effect of heating (See also Section Hazardous decomposition products). If involved in a fire, it will support combustion. Vapours may form explosive mixtures with air. In case of fire and/or explosion do not breathe fumes.

NFPA ratings	
Hazard classes	Rating
Health	3
Flammability	2
Reactivity	2
Other information	-OX

#### 6. ACCIDENTAL RELEASE MEASURES

**Personal precautions**

Do not breathe fumes/vapour. Avoid contact with skin and eyes. For personal protection see Section 8.

**Environmental precautions**

Do not allow to enter drains or water courses.

**Methods for cleaning up**

Stop leakage if possible. Eliminate all sources of ignition, and do not generate flames or sparks. Collect as much as possible in a clean container for (preferable) reuse or disposal. Cover the remainder with inert absorbent (e.g. vermiculite) for disposal. Keep contents moist. The waste should NOT be confined. Flush surroundings with large amounts of water.

**Other information**

CAUTION: reignition may occur. Vapours are heavier than air and may spread along floors. Vapours may travel to a source of ignition and flash back. Evacuate personnel to safe area.

#### 7. HANDLING AND STORAGE

**Handling**

Never weigh out in the storage room. When using do not eat, drink or smoke. Do not pipet by mouth. Do not breathe fumes/vapour. Handle in well ventilated areas. Eliminate all sources of ignition, and do not generate flames or sparks. Keep away from reducing agents (e.g. amines), acids, alkalies and heavy metal compounds (e.g. accelerators, driers, metal soaps). Keep product and emptied container away from heat and sources of ignition. Confinement must be avoided. Avoid contact with skin and eyes. Avoid Incompatible materials (See Section 10).

**Fire and explosion prevention**

Use explosion protected equipment. Keep away from sources of ignition - No smoking. Use non-sparking tools in area's where explosive vapor air mixtures may occur. Do not cut or weld on or near this container even when empty.

**Storage requirements**

Store in accordance with local/national regulations. Keep away from food, drink and animal feedingstuffs. Store in a dry well ventilated place away from sources of heat and direct sunlight. Store separate from other chemicals. Keep only in the original container. Keep container upright to prevent leakage.

**Storage**

For maximum quality store below: 30 °C.



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**Other information**

It is recommended to use electrical equipment of temperature group T3. However, autoignition can never be excluded. Wash hands thoroughly after handling or contact. Keep working clothing separately and do not take them home.

#### 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

**Engineering controls**

Ensure good ventilation and local exhaustion of the working area. Explosion proof ventilation recommended.

**Personal protection**

**Respiratory**

In case of insufficient ventilation wear suitable respiratory equipment (respirator with Filter A).

**Hand**

Wear suitable protective gloves of neoprene or synthetic rubber.

**Eye**

Wear eye/face protection.

**Skin and body**

Wear suitable protective clothing.

**Other information**

Emergency-shower and facilities for rinsing eyes must be accessible. Launder clothes before reuse.

#### Methyl ethyl ketone peroxide

OSHA PEL/CEILING	5 mg/m <sup>3</sup>
ACGIH TLV/CEILING	0.2 ppm
NIOSH REL/CEILING	1.5 mg/m <sup>3</sup>

#### Hydrogen peroxide

OSHA TLV/TWA	1.4 mg/m <sup>3</sup>
ACGIH TLV/TWA	1 ppm
NIOSH REL/TWA	1.4 mg/m <sup>3</sup>
NIOSH IDLH	75 ppm

#### Methyl ethyl ketone

OSHA TLV/TWA	590 mg/m <sup>3</sup>
OSHA PEL/STEL	885 mg/m <sup>3</sup>
ACGIH TLV/TWA	200 ppm
ACGIH TLV/STEL	300 ppm
NIOSH REL/TWA	590 mg/m <sup>3</sup>
NIOSH REL/STEL	885 mg/m <sup>3</sup>
NIOSH IDLH	3000 ppm

#### 9. PHYSICAL AND CHEMICAL PROPERTIES

**Appearance**

liquid

**Color**

red

**Odor**

faint

**Boiling point/range**

not applicable (Decomposes)

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<b>Melting point/range</b> not determined
<b>Flash point</b> Above the SADT value
<b>Flammability</b> Decomposition products may be flammable.
<b>Explosive properties</b> no
<b>Oxidizing properties</b> not applicable
<b>Vapour pressure</b> not determined
<b>Density</b> 1000 kg/m <sup>3</sup> (20°C / 68°F) Specific gravity = 1 (20°C / 68°F)
<b>Bulk density</b> not applicable
<b>Solubility in water</b> Partly miscible with water (20°C / 68°F)
<b>Solubility in other solvents</b> not determined
<b>pH value</b> not determined
<b>Partition coefficient n-octanol/water</b> not determined
<b>Relative vapour density (air=1)</b> not determined
<b>Viscosity</b> not determined
<b>Active oxygen content</b> 8.8 - 9.0 %
<b>Peroxide content</b> 30-35 %
<b>Autoignition temperature</b> Test method not applicable (See Section 7)
<b>SADT</b> 60 °C. See also Section 10.
<b>Explosion limits</b> not determined
<b>Volatile %</b> not determined

### 10. STABILITY AND REACTIVITY

<b>Stability</b>
SADT - (Self accelerating decomposition temperature) is the lowest temperature at which self accelerating decomposition may occur with a substance in the packaging as used in transport. A dangerous self-accelerating decomposition reaction and, under certain circumstances, explosion or fire can be caused by thermal decomposition at and above the following temperature: 60 °C. Contact with incompatible substances can cause decomposition at or below the SADT 60 °C.

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<b>Conditions to avoid</b>	
	To maintain quality store in original closed container below: 30 °C.
	Confinement must be avoided.
<b>Incompatibles</b>	
Avoid contact with rust, iron and Copper. Contact with incompatible materials such as acids, alkalies, heavy metals and reducing agents will result in hazardous decomposition. Do not mix with peroxide accelerators. Use only Stainless steel 316, PVC, polyethylene or glass-lined equipment.	
<b>Polymerization</b>	
Polymerization does not occur.	
<b>Decomposition</b>	
Acetic acid, Formic acid, Propanoic acid, Methyl ethyl ketone	
<b>Other information</b>	
Emergency procedures will vary depending on conditions. The customer must have an emergency response plan in place. Contact Akzo Nobel for assistance with developing an emergency response plan.	

### 11. TOXICOLOGICAL INFORMATION

No experimental toxicological data on the preparation as such available. The following data are applicable to the ingredient(s) listed below.	
<b>Methyl ethyl ketone peroxide, 40 % in Dimethyl phthalate</b>	
	<b>Acute toxicity</b>
	<b>Oral LD50</b> rat:1017 mg/kg
	<b>Dermal LD50</b> rat:4000 mg/kg
	<b>Inhalation LC50</b> rat:17 mg/l ; 4 hours exposure time
	<b>Irritation</b>
	<b>Skin</b> Corrosive
	<b>Eye</b> Corrosive
	<b>Sensitization</b> Not sensitizing
	<b>Genotoxicity</b> Ames test: Not mutagenic
<b>Methyl ethyl ketone</b>	
	<b>Acute toxicity</b>
	<b>Oral LD50</b> rat: 2737 mg/kg
	<b>Dermal LD50</b> rabbit 6480 mg/kg
	<b>Inhalation LC50</b> rat 23.5000 mg/m <sup>3</sup>
	<b>Irritation</b>
	<b>Skin</b> Moderately irritating

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<b>Eye</b> Moderately irritating
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12. ECOLOGICAL INFORMATION

No experimental ecological data are available on the preparation as such. The following data are applicable to the ingredient(s) listed below.

**Methyl ethyl ketone peroxide, 40 % in Dimethyl phthalate**

**Ecotoxicity**

<b>fish</b> Acute toxicity, 96h-LC50 = 44.2 mg/l. ( Poecilia reticulata.)
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<b>bacteria</b> Activated sludge respiration inhibition test EC50 = 48.0 mg/l.
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**Fate**

<b>Degradation Biotic</b> Readily biodegradable ( Closed bottle test ).
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**Methyl ethyl ketone**

**Ecotoxicity**

<b>fish</b> Lepomis macrochirus: 96h-LC50: 3.22 g/l
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**Fate**

<b>Degradation Biotic</b> Readily biodegradable.
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<b>Other information</b> Naturally occurring substance
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13. DISPOSAL CONSIDERATIONS

**Product**

Due to the high risk of contamination recycling/recovery is not recommended. Waste disposal in accordance with regulations (most probably controlled incineration).

**Contaminated packaging**

According to local regulations. Emptied container might retain product residues. Follow all warnings even after the container is emptied.

**Other information**

For further advice contact manufacturer.

14. TRANSPORT INFORMATION

*Land transport*

<b>Class</b> 5.2
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<b>Packing group</b> II
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<b>TREM-Card or ERG number</b> NA ERG No.: 145
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<b>UN number</b> UN3105
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<b>Proper Shipping Name</b> Organic peroxide type D, liquid; ( Methyl ethyl ketone peroxide <=45%.)
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<b>Other information</b> This product contains methyl ethyl ketone peroxide (RQ=10 lbs.) which is an environmentally hazardous substance per 49 CFR 172.101, Appendix A.
<b>Required labels</b> Label(s); 5.2

<i>Sea transport (IMDG-code/ IMO)</i>
<b>Class</b> 5.2
<b>UN number</b> 3105
<b>EMS</b> F-J, S-R
<b>Marine pollutant</b> no
<b>Proper Shipping Name</b> Organic peroxide type D, liquid; ( Methyl ethyl ketone peroxide (s) )
<b>Other information</b> Label(s); 5.2

<i>Air transport (ICAO-TI/ IATA-DGR)</i>
<b>UN number</b> 3105
<b>Class</b> 5.2
<b>Proper Shipping Name</b> Organic peroxide type D, liquid; ( Methyl ethyl ketone peroxide (s) )
<b>Other information</b> Label(s); 5.2

#### 15. REGULATORY INFORMATION

<b>Product and or components listed below are subject of the following</b>	
<b>Methyl ethyl ketone peroxide</b>	
CERCLA Hazardous Substance	yes (RQ = 10 LB)
Massachusetts Substance List	yes
New Jersey R-T-K Hazard. Sub.	yes
Penn. Hazardous Substance list	yes
Toxic Subst. Cont. Act -listed	yes
Non-Domestic Subst.List-Canada	no
Domestic Substance List-Canada	yes
California Hazardous Substances	yes
Connecticut Hazardous Material Survey	yes
Minnesota Hazardous Substance	yes
New York Hazardous Substances	yes



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Rhode Island Hazardous Substances	yes
<b>2,2,4-Trimethyl-1,3-pentanediol diisobutanoate</b>	
Toxic Subst. Cont. Act -listed	yes
Non-Domestic Subst.List-Canada	no
Domestic Substance List-Canada	yes
<b>Hydrogen peroxide</b>	
IARC Carcinogens-Grps. 1,2A,2B	
Massachusetts Substance List	yes
New Jersey R-T-K Hazard. Sub.	yes
Penn. Hazardous Substance list	yes
SARA Title III, Section 302	yes
Toxic Subst. Cont. Act -listed	yes
Non-Domestic Subst.List-Canada	no
Domestic Substance List-Canada	yes
California Hazardous Substances	yes
Connecticut Hazardous Material Survey	yes
Illinois Toxic Substances Disclosure to Es	yes
Louisiana RTK Reporting	yes
Minnesota Hazardous Substance	yes
New York Hazardous Substances	yes
Rhode Island Hazardous Substances	yes
<b>Methyl ethyl ketone</b>	
CERCLA Hazardous Substance	yes (RQ = 5000 LB)
Massachusetts Substance List	yes
New Jersey R-T-K Hazard. Sub.	yes
Penn. Hazardous Substance list	yes
Toxic Subst. Cont. Act -listed	yes
Non-Domestic Subst.List-Canada	no
Domestic Substance List-Canada	yes
California Hazardous Substances	yes
Connecticut Hazardous Material Survey	yes
Illinois Toxic Substances Disclosure to Es	yes
Minnesota Hazardous Substance	yes
New York Hazardous Substances	yes
Rhode Island Hazardous Substances	yes
<b>Water</b>	
Toxic Subst. Cont. Act -listed	yes
Non-Domestic Subst.List-Canada	no
Domestic Substance List-Canada	yes

<b>Hazard classes</b>	
<b>Description</b>	<b>Applicable</b>
EPA Immediate health	yes
EPA Delayed health	no

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EPA Fire	yes
EPA Pressure	no
EPA Reactive	yes
EHS Material	yes
Hazard Rating Source	HMIS
HMIS Health	3
HMIS Flammability	2
HMIS Reactivity	2
WHMIS Hazard classes	B-3,C,D-2B,E,F
	
NFPA Flammability	3
NFPA Health	2
NFPA Reactivity	2
<b>Other regulatory information</b> This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations and the MSDS contains all of the information required by the Controlled Products Regulations	

**16. OTHER INFORMATION**

<b>History</b>
<b>Other information</b> CADOX: This is a registered trademark of Akzo Nobel Chemicals BV or any of its affiliated companies in one or more territories in the world.
<b>Date of printing/ pdf file generated</b> 2007/10/05
<b>Revision</b> 1.02
<b>Composed by</b> N. Shoshenskiy, Regulatory Affairs - North America.J.W. Wessels - Regulatory Affairs - Europe.
<b>Changes were made in section</b> 1, 2, 3
<small>The information in this material safety data sheet should be provided to all who will use, handle, store, transport or otherwise be exposed to this product. All information concerning this product and/or suggestions for handling and use contained herein are offered in good faith and are believed to be reliable as of the date of publication. However, no warranty is made as to the accuracy of and/or sufficiency of such information and/or suggestions as to the merchantability or fitness of the product for any particular purpose, or that any suggested use will not infringe any patent. Nothing in here shall be construed as granting or extending any license under any patent. Buyer must determine for himself, by preliminary tests or otherwise, the suitability of this product for his purposes, including mixing with other products. The information contained herein supersedes all previously issued bulletins on the subject matter covered. If the date on this document is more than three years old, call to make certain that this sheet is current.</small>