



KRD CO., LTD.

Noksan National Industrial Complex
1529-4, Songjeong-dong, Gangseo-gu, Busan 618-817, Korea
Tel: 82 51 831 1030 / Fax: 82 51 831 1040

MATERIAL SAFETY DATA SHEET

According to the Directive 91/155/CEE

Date of Preparation 11/01/1999
MSDS No of Revision HCSDE (2)
Date of Revision 12/01/2008

1. Identification of the substance/preparation and of the company

Trade name **HEMOCLEAN[®]**
Supplier/Manufacturer's name KRD CO., LTD
1529-4, Songjeong-dong, Gangseo-gu, Busan 618-817,
Korea
TEL: 82 51 831 1030 FAX: 82 51 831 1040
Emergency call number 82 51 831 2620

2. Composition/Information on ingredients

Chemical nature Peracetic acid cleaner

Major ingredients

Peracetic acid	1.73%
Hydrogen peroxide	≤5.95%
Acetic acid	15~17%
Inert ingredients	Business secret
purified water	Balance

Ingredients which could bring danger

Peracetic acid	CAS Number: 79-21-0
Hydrogen peroxide	CAS Number: 7722-84-1
Acetic acid	CAS Number: 64-19-7

3. Hazards identification

Specific risk

Inhalation	YES
Skin	NO
Ingestion	YES

This product can cause burns, as evidence by temporary whitening of skin, irritation to eyes, skin & mucous membranes.



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4. First aid measures

Inhalation	Remove to fresh air. Support breathing.
Skin contact	Rinse with running water
Eye contact	Immediately flush eyes with copious amounts of running water (at least 10 minutes), see a oculist.
Ingestion	Flush oral cavity, drink plenty of water, and see a physician

5. Fire fighting measures

Means of extinction	
Recommended	Suitable agents of extinction: Water broken jet or full jet, foam extinguishing Inappropriate agents of extinction: Extinguishing powder, carbon dioxide.
Particular methods release.	In the event of peripheral fire danger of decomposition with oxygen release. The oxygen release can support combustion. Danger of overpressure and bursting in the event of decomposition in closed containers. In the event of fire to cool the containers threatened using water or the walnut tree with water.
Special equipment for the protection of the speakers	Use NIOSH/MSHA approved full protective equipment.

6. Accidental release measure

Individual precautions	Avoid contact with skin and eyes
Precautions for the environmental protection	
Methods of cleaning	Product is biodegradable under OECD conditions In the event of discharge, to draw aside any source of ignition, to spread an absorbing matter inert. Not to use textile, of the combustible material, sawdust. To collect and eliminate in barrels, to cover them. To wash the part soiled with water. Additional indications: Never not to give a product which would have was spread, in the container of origin for re-use. (Risk of decomposition)

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7. Handling & Storage

Handling No specific measures required
 Storage Keep container tightly sealed but vented.
 When not in use, store in a cool, dry area.
 Only use approved steel and plastic containers

8. Exposure controls/personal protection

Exposure Assessment	
<u>Skin Designation (ACGIH)</u>	Not evaluated
<u>Flammability (NFPA)</u>	<u>2: high ambient temperature required</u>

Information on the system design

No special measures required

Components with specific control parameters

None

Personal protection:

Respiratory protection Use suitable NIOSH/MSHA approved respiratory protection if air contamination is above permitted levels.
 Hand protection Suitable protective gloves recommended
 Eye protection Protective goggle recommended

9. Physical & Chemical properties

Aspect Physical State: Liquid
 Color: Colorless
 Odor: Typical acetic acid odor
 pH 0.6~0.7 (20°C)
 Density Approx. 1.10 g/cm³ (20°C)
 Flammability (NFPA) 2: high ambient temperature required
 Flash point below 200 °F abut above 100°F (38~100°C)
 Solubility Soluble in water unlimited
 Vapor pressure Not established

10. Stability & Reactivity

Stability Stable
 Conditions to avoid No decomposition if used according to specification
 Open flames, elevated temperatures, any source of heat,
 combustibles such as paper and wood and contamination.

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For quality purposes, avoid temperatures above 40°C.

Higher temperatures will accelerate decomposition
resulting in a loss of assay.

Materials to be avoided

Heavy metals, iron, copper, copper alloys, brass, aluminum,
alkali, caustic, chlorine.

11. Toxicological Information

LD ₅₀	<2,000 mg/kg (Rat, OECD)
Primary ocular irritation	Mild Irritation (Rabbit, OECD)
Primary skin	Non-irritation (Rabbit, ISO)
Skin sensitization	Non-irritation (Guinea Pig, ISO)
Acute dermal	Non-toxic (Rabbit, OECD)

12. Ecological information

No known adverse effects from normal use
Readily biodegradable under OECD conditions

13. Disposal considerations

	Taking into account the regulation in force, contaminated packing In consultation with the responsible local, state & federal authority.
Neutralizing agent	None specified agents

14. Transport information

[U.S. Department of Transportation (DOT)]

Proper shipping Name	Peracetic Acid Mixtures, Stabilized with Acids, Water and not more than 6% Peroxyacetic Acid
Primary Hazard class/Division	5.1 (Oxidizer)
Hazard class, subsidiary	8 (Corrosive)
UN/NA number	UN 3149
Packing group	II
Label(s)	5.1 Oxidizer and Subsidiary Risk: 8 (Corrosive)
Placard(s)	Bulk: 5.1 Oxidizer
Marking(s)	Hydrogen Peroxide and Peroxyacetic Acid Mixtures, Stabilized with Acids, Water and not more than 6% Peroxyacetic Acid, UN 3149
Reportable Quantity (RQ)	Not applicable

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Additional information	49 STCC Number: Not required - no rail shipments Shipments Material is shipped in 5 gal. (45 lb.), 30 gal.(250 lb.) and 55 gal. (495 lb.) vented linear (not cross linked) polyethylene drums and IBCs. Do not ship on wooden pallets. Material is shipped in 5h gal. (45 lb.), 30 gal. (250 lb.) and 55 gal. (495 lb.) vented linear (not cross linked) polyethylene drums and IBCs. Do not ship on wooden pallets.
International Maritime Dangerous Goods (IMDG)	
Proper shipping name	Hydrogen Peroxide and Peroxyacetic Acid Mixtures, Stabilized with Acids, Water and not more than 6% Peroxyacetic Acid
[International Civil Aviation Origination (ICAO)/International Air Transport Association (IATA)]	
Proper shipping name	Hydrogen Peroxide and Peroxyacetic Acid Mixtures, Stabilized with Acids, Water and not more than 6% Peroxyacetic Acid
Other Information	Dike any spills. Protect against damage. Use proper personal protective equipment and positive pressure self-contained breathing apparatus when handling spills or leaks. When shipped via vessel, container requires subsidiary placarding in addition to main hazard class placards.

15. Regulatory information

[United States]

SARA Title III (Superfund Amendments and Reauthorization Act)

Section 302 extremely hazardous substances (40 CFR 355, Appendix A)

Listed (Peracetic Acid)

Planning Threshold = 500 lbs., Listed

Reportable quantity:

Chemical Name RQ

Peroxyacetic Acid 500 lb

Section 311 Hazard categories (40 CFR 370)

Fire Hazard, Immediate (Acute) Health Hazard

Section 312 Threshold planning quantity (40 CFR 370)

The Threshold Planning Quantity (TPQ) for this product, if treated as a mixture, is 10,000 lbs; however, this product contains the following ingredients with a TPQ of less than

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10,000 lbs.: 500 lb

Section 313 Reportable ingredients (40 CFR 372)

Listed

Peracetic acid

CERCLA (Comprehensive Environmental Response Compensation and Liability Act)

CERCLA Designation & Reportable Quantities (RQ) (40 CFR 302.4):

5% Peracetic Acid (Unlisted), RQ = 100 lbs., Corrosivity,
Reactivity

Listed

Chemical Name RQ

Acetic Acid 5,000 lb Category D

TSCA (Toxic Substance Control Act)

TSCA Inventory Status (40 CFR 710):

Listed

Resource Conservation and recovery Act (RCRA)

RCRA Identification of Hazardous Waste (40 CFR 261)

Waste Number: D001 (ignitability), D002 (corrosivity)

[Canada]

WHMIS (Workplace Hazardous Materials Information System)

Product Identification Number: 9183

Hazard Classification / Division: Class D, Div. 2

Subdiv. B. (Toxic)

Class E (Corrosive)

Class C (Oxidizer)

Ingredient Disclosure List: Listed

[International Listings]

Peroxyacetic acid:

Australia (AICS): Listed

China: Listed

Japan (ENCS): (2)-689

Philippines (PICCS): Listed

Hydrogen peroxide:

China: Listed

Japan (ENCS): (1)-419

Korea: KE-20204

Philippines (PICCS): Listed

Acetic acid:

Australia (AICS): Listed

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China: Listed
Japan (ENCS): (2)-688
Korea: KE-00013

16. Other information

[Hazard, risk and safety phrase descriptions]

Peroxyacetic acid:

EC Symbols: C (Corrosive)

Xi (Irritant)

N (Environmentally dangerous substance)

O (Oxidizer)

Peracetic Acid 5% (79-21-0-3) Date: 07/14/2004

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EC Risk Phrases: R7 (May cause fire)

R10 (Flammable)

R20/21/22 (Harmful by inhalation, in contact with skin and if swallowed.)

R36/37/38 (Irritating to eyes, respiratory system and skin.)

R35 (Causes severe burns.)

R50 (Very toxic to aquatic organisms.)

EC Safety Phrases: **S1/2** (Keep locked up and out of reach of children.)

S3/7 (Keep in a cool place and keep container tightly closed)

S14 (Keep away from: see Incompatible Materials in Section 10 above)

S36/37/39 (Wear suitable protective clothing, gloves and eye/face protection.)

S45 (In case of accident or if you feel unwell, seek medical advice immediately - show the label where possible.)

S61 (Avoid release to the environment. Refer to special instructions/safety data sheets.)