



MATERIAL SAFETY DATA SHEET

Material Number/Product Name

819823 - HI-RENDOL I DEVELOPER, PART B

SECTION 1 - COMPANY IDENTIFICATION

FUJI NDT SYSTEMS

Division of FUJI MEDICAL SYSTEMS USA
1055 Stevenson Court, Bldg 105
Roselle, IL 60172

Technical Contact:

Non-Emergency No. 1-800-323-2546
Emergency No. 1-800-424-9300
Emergency No. 1-703-527-3887
(Outside US & Canada)

Catalog / Sub-assembly Number: 746543

SECTION 2 - COMPOSITION / INFORMATION ON INGREDIENTS

Hazardous Ingredients	CAS Number	Wt.%	OSHA PEL (mg/m3)	ACGIH (mg/m3)
Hydroquinone	123-31-9	10-20%	2	2
m-Dihydroxybenzene	108-46-3	1-5%	45 TWA; 90 STEL	45 TWA; 90 STEL
Pyrazolidinone Derivative	92-43-3	0.5-1.5%	NE	NE
Tetraethylene Glycol	112-60-7	0.5-1.5%	NE	NE
Triethylene Glycol	112-27-6	60-80%	NE	NE
Water	7732-18-5	7-15%	NE	NE

NE=Not Established STEL=Short Term Exposure Limit C=Ceiling Limits

SECTION 3 - HAZARDS IDENTIFICATION

EMERGENCY OVERVIEW

Appearance: Clear, brownish-orange, aqueous liquid

Odor: No odor

Avoid contact with eyes, skin or clothing. Avoid breathing mist or vapor. Do not swallow. Wear chemical safety goggles & neoprene gloves and apron. Wash thoroughly after handling. Keep container closed when not in use. Use only with adequate ventilation. May produce hazardous gases under fire conditions. During emergencies, wear equipment to protect eyes, skin and respiratory tract. Dike or absorb spills to keep material and run-off from entering sewer or waterways. Use water spray to cool containers and disperse vapors. Box may contain multiple containers having multiple components. Consult all MSDSs.

HMSI: Health: 2 Flammability: 0 Reactivity: 0 Protection: C
NFPA: Health: 2 Flammability: 0 Reactivity: 0 Spec. Haz.: None

Hazard Rating: 0 = Minimal 1 = Slight 2 = Moderate 3 = Serious 4 = Severe
A = Gloves B = Gloves & Goggles C = Gloves, Goggles & Apron
D = Face Shield, Gloves, Goggles & Apron

UN NO: None

DOT GUIDE: ERG Guide 111

Potential Health Effects:

- Skin: Contact causes irritation.
- Eyes: Contact may cause slight irritation.
- Inhalation: Irritant to respiratory tract and mucous membranes.
- Ingestion: Ingestion of product may cause nausea and vomiting.

Conditions aggravated by exposure:

None expected except those associated with acute effects.

Carcinogenicity: IARC: Y NTP: Y OSHA:

SECTION 4 - FIRST AID MEASURES

- Eye Contact: Immediately flush with COOL water for 15 minutes. Call a physician.
- Skin Contact: In case of skin contact; immediately flush with cool water for 15 minutes. Call a physician.
- Ingestion: In case of ingestion; seek immediate medical attention.
- Inhalation: Immediately remove victim to fresh air. Call a physician for further recommendations.

SECTION 5 - FIRE FIGHTING MEASURES

Flammable Properties

- Flash Point: None deg F (TCC)
- Autoignition Temperature: N/A deg F (CC)
- Explosion Limits: Lower: N/A vol.%; Not Tested
Upper: N/A vol.%;

Extinguishing Media:

Choose extinguishing media suitable for the surrounding materials, such as water spray, dry chemical, alcohol foam or carbon dioxide.

Unsuitable Extinguishing Media:

No restrictions on media based on knowledge of this material.

Fire Fighting Instructions:

Water spray should be used to cool fire exposed containers and to disperse un-ignited vapors. Use NIOSH/MSHA approved positive pressure self-contained breathing apparatus when material has ignited or becomes involved in a fire. Try to remove material containers from fire area if can be accomplished without risk to personnel.

Evacuate area and fight fire from a safe distance. Call your local fire department. Wear positive pressure, breathing apparatus and protect eyes and skin. Use water to cool fire-exposed containers, to protect personnel and to disperse vapors and spills. Fire media run-off can damage the environment. Dike and collect media used to fight fire.

SECTION 6 - ACCIDENTAL RELEASE MEASURES

Small Spills:

For incidental spills and leaks, wear adequate personal protective equipment, see Section 8 (Exposure & Personal Protection). Spills should be contained by, and covered with suitable absorbent material and removed for disposal. Dispose of according to local and national regulations. Prevent from entering into soil, waterways and groundwater.

Large Spills:

For larger spills, requiring emergency response, neoprene boots and respiratory protection may also be required. Follow OSHA regulations and NIOSH recommendations for respiratory protection (see 29 CFR 1910.134 and NIOSH pub. 87-108) and emergency response (see 29 CFR 1910.120). Hold in properly labeled DOT-approved waste container. Dike large spills to minimize the spill area. Material can cause environmental damage.

SECTION 7 - HANDLING / STORAGE

Handling:

Avoid contact with eyes, skin or clothing. Avoid breathing mist or vapor. Do not swallow. Wear chemical safety goggles and neoprene gloves and apron. Wash thoroughly after handling. Keep container closed when not in use. Use only with adequate ventilation. Direct contact or vapor concentrations greater than Threshold Limiting Value (TLV) may casue permanent eye damage.

** The National Toxicology Program (NTP) has found that Hydroquinone shows some e vidence of carcinogenic potential in animals; however, the International Agenc y for Research on Cancer (IARC) has determined inconclusive evidence exists on Hydroquinone's carcinogenic potenital in animals.

** Note: NTP, OSHA and IARC do not place Hydroquinone on their lists of suspecte d carcinogens.

Storge:

Store in a cool, dry, well-ventilated area. Keep container closed when not in use.

SECTION 8 - EXPOSURE CONTROL AND PERSONAL PROTECTION

Ventilation:

Good general ventilation should be sufficient for most processing operations. Vent work area to ensure airborne concentrations are below the current occupational exposure limits. Ten (10) or more room air changes per hour containing a minimum of 15% fresh air will meet these requirements. Consult ASHRAE 62-1989 for further requirements.

Personal Protective Equipment

Respiratory Protection: If used under normal operating conditions and with adequate ventilation, respiratory protection is not required. However, refer to OSHA 29 CFR 1910.13

4.

- Skin Protection: Neoprene gloves and apron
Eye Protection: Chemical safety goggles

SECTION 9 - PHYSICAL AND CHEMICAL PROPERTIES

Appearance: Clear, brownish-orange, aqueous liquid

Odor: No odor

Change in Physical State:

- Boiling Point: >212 deg F
Melting Point: N/D deg F
Specific Gravity: 1.14 Water=1
Vapour Pressure: ~14 mmHg @ 20C
Viscosity: N/A
Solubility in Water: Complete
pH Value: 5.4
VOC (lbs/gal): 0 (Minus water)

SECTION 10 - STABILITY AND REACTIVITY

Hazardous Polymerization:

Hazardous polymerization WILL NOT occur if product is used and stored as directed. Product is stable if used and stored as directed.

Hazardous Decomposition Products:

Oxides of Nitrogen; Oxides of Carbon

Materials and Conditions to Avoid:

Keep away from excess heat. Avoid contact with strong oxidizers, strong acids and strong bases.

SECTION 11 - TOXICOLOGICAL INFORMATION

Product Information

LD50 (oral, rat): 1888 mg/kg

Acute Overexposure:

Skin, eye, mucous membrane and respiratory tract irritant.

Chronic Overexposure:

Prolonged or repeated skin contact may cause allergic reaction and dermatitis.

Ingredient information:

May be mutogenic based on Pyrazolidone Derivative. Animal studies have shown that Pyrazolidone Derivative causes blood disorders, testicular damage and adverse reproductive effects, such as infertility.

SECTION 12 - ECOLOGICAL INFORMATION

Ecotoxicity Data: No Data Available

Chemical Fate Data: No Data Available

SECTION 13 - DISPOSAL CONSIDERATIONS

Hazardous Waste Characteristic:

None

Recommendation:

Dispose of contaminated product, empty containers and materials used in cleaning up spills or leaks in a manner approved for this material. Consult appropriate federal, state and local regulatory agencies to ascertain proper disposal procedures. Discharge of processing effluent to the sewer may require a permit. DO NOT discharge effluent solutions to septic systems.

SECTION 14 - TRANSPORTATION INFORMATION

Domestic DOT Shipping Class: Chemicals, N.O.I., Not D.O.T. regulated.

Hazard Class: None

UN Number: None

Packing Group: None

International Maritime Organization (IMO) Additional Shipping Codes:

IMDG Code: Not Applicable

Amdt. Code: Amdt. N/A

HTS No.: Not Applicable

Product is labeled in accordance with US D.O.T. 49 CFR.

Passenger Aircraft Packing Instructions:

None

Further information:

For further information, please call 800-323-2546

SECTION 15 - REGULATORY INFORMATION

U.S. FEDERAL REGULATIONS:

313 = SARA Title III Section 313 (40 CFR 372 -- Toxic Release Inventory)

355 = SARA Title III Section 302 (40 CFR 355 -- Extremely Hazardous Substance)

302 = SARA Title III Section 304 (40 CFR 302 -- Hazardous Substance List)

CWA = Clean Water Act Priority Pollutants List

CAA = Clean Air Act 1990 Hazardous Air Contaminants

HAP = Clean Air Act - HON Rule - HAPs

Ingredients	CAS Number	313	355	302	CWA	CAA	HAP
Hydroquinone	123-31-9	Y	Y	Y	N	Y	Y
m-Dihydroxybenzene	108-46-3	N	N	Y	N	N	N
Pyrazolidinone Derivative	92-43-3	N	N	N	N	N	N
Tetraethylene Glycol	112-60-7	N	N	N	N	N	N

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Triethylene Glycol	112-27-6	N	N	N	N	N	N
Water	7732-18-5	N	N	N	N	N	N

TSCA 12(b) Export Notification
 None required

TOXICITY INFORMATION:

IRC1 = IARC Group 1 Human Carcinogens List
 IRC2 = IARC Group 2 Human Carcinogens List (limited human data)
 IRC3 = IARC Group 2B Human Carcinogens List (sufficient animal data)
 NTP = NTP Known Carcinogens List
 OSHA = OSHA Known Carcinogens List

Ingredients	CAS Number	IRC1	IRC2	IRC3	NTP	OSHA
Hydroquinone	123-31-9	N	N	N	N	N
m-Dihydroxybenzene	108-46-3	N	N	N	N	N
Pyrazolidinone Derivative	92-43-3	N	N	N	N	N
Tetraethylene Glycol	112-60-7	N	N	N	N	N
Triethylene Glycol	112-27-6	N	N	N	N	N
Water	7732-18-5	N	N	N	N	N

STATE REGULATIONS:

FL = Florida Hazardous Substance List MA = Massachusetts Right-To-Know List
 MI = Michigan Critical Materials List MN = Minnesota Hazardous Substance List
 NJ = New Jersey Right-To-Know List PA = Pennsylvania Right-To-Know List

Ingredients	CAS Number	PA	NJ	MN	MI	MA	FL
Hydroquinone	123-31-9	Y	Y	Y	Y	Y	Y
m-Dihydroxybenzene	108-46-3	Y	Y	Y	N	Y	Y
Pyrazolidinone Derivative	92-43-3	N	N	N	N	N	N
Tetraethylene Glycol	112-60-7	N	N	N	N	N	N
Triethylene Glycol	112-27-6	Y	N	N	N	N	N
Water	7732-18-5	N	N	N	N	N	N

SECTION 16 - OTHER INFORMATION

This information is provided without warranty. The information is believed to be correct. This information should be used to make an independent determination of the methods to safeguard workers and the environment.