

SAFETY DATA SHEET

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Version 1

1. IDENTIFICATION OF THE SUBSTANCE/MIXTURE AND OF THE COMPANY/UNDERTAKING

Product name: INDUSTREX Manual Developer

Product code: 5320635

Supplier Carestream Health Canada, 8800 Dufferin Street, Suite 201, Vaughan, Ontario, L4K 0C5

For Emergency Health Information call: 800-424-9300

For other information contact: 1-866-792-5011

Product Use: Photographic chemical. Restricted to professional users.


2. HAZARDS IDENTIFICATION

Classification

Serious eye damage/eye Irritation	Category 1
Skin Sensitization	Category 1
Germ cell mutagenicity	Category 2
Carcinogenicity	Category 2

Label elements

Emergency Overview

Signal word	Danger	
Hazard Statements Causes serious eye damage May cause an allergic skin reaction Suspected of causing genetic defects Suspected of causing cancer		
Appearance Colorless	Physical state liquid	Odor Odorless

Precautionary Statements - Prevention

Obtain special instructions before use. Do not handle until all safety precautions have been read and understood. Avoid breathing dust/fume/gas/mist/vapors/spray. Wash face, hands and any exposed skin thoroughly after handling. Contaminated work clothing should not be allowed out of the workplace. Wear protective gloves/protective clothing/eye protection/face protection.

Precautionary Statement - Response

IF exposed or concerned: Get medical advice/attention.

Eyes

IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Immediately call a POISON CENTER or doctor/physician.

Skin

IF ON SKIN: Wash with plenty of soap and water. Wash contaminated clothing before reuse. If skin irritation or rash occurs: Get medical advice/attention.

Precautionary Statement - Storage

Store locked up.

Precautionary Statements - Disposal

Dispose of contents/container to an approved waste disposal plant.

Hazards not otherwise classified (HNOC)

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Other Information

May be harmful if swallowed. Very toxic to aquatic life.

3. COMPOSITION/INFORMATION ON INGREDIENTS

Chemical Name	CAS-No	Weight %	Trade Secret
Water 7732-18-5	7732-18-5	70-80	*
Potassium sulfite 10117-38-1	10117-38-1	5-10	*
Hydroquinone 123-31-9	123-31-9	5-10	*
Diethylene glycol 111-46-6	111-46-6	1-5	*
Potassium carbonate 584-08-7	584-08-7	1-5	*
Sodium bromide 7647-15-6	7647-15-6	1-5	*

*The exact percentages (concentrations) have been withheld as trade secrets.

4. FIRST AID MEASURES

First Aid Measures**General advice**

Show this material safety data sheet to the doctor in attendance.

Eye contact

Immediate medical attention is required. Immediately flush with plenty of water. After initial flushing, remove any contact lenses and continue flushing for at least 15 minutes.

Skin contact

Wash off immediately with soap and plenty of water while removing all contaminated clothes and shoes. Remove and wash contaminated clothing before re-use. Get medical attention immediately if symptoms occur.

Inhalation

Move to fresh air in case of accidental inhalation of vapors. Get medical attention immediately if symptoms occur.

Ingestion

If swallowed, call a poison control center or doctor immediately. Do NOT induce vomiting. Never give anything by mouth to an unconscious person. Drink plenty of water.

Protection of First-aiders Use personal protective equipment. Avoid contact with skin, eyes and clothing.

Most important symptoms and effects, both acute and delayed

Main Symptoms Causes serious eye irritation. May cause an allergic skin reaction. Difficulty breathing. Coughing and/ or wheezing.

Indication of any immediate medical attention and special treatment needed

Notes to physician Treat symptomatically.

5. FIRE-FIGHTING MEASURES

Suitable Extinguishing Media

Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.

Unsuitable Extinguishing Media

Do not scatter spilled material with high pressure water streams.

Specific hazards arising from the chemical

Thermal decomposition can lead to release of irritating gases and vapors.

Hazardous Combustion Products

Carbon oxides, Sulfur oxides.

Explosion Data

Sensitivity to Mechanical Impact None.

Sensitivity to Static Discharge None.

Protective Equipment and Precautions for Firefighters

As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA/NIOSH (approved or equivalent) and full protective gear.

6. ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures

Personal precautions Ensure adequate ventilation. Avoid contact with skin, eyes and clothing. For personal protection see section 8.

Other information Refer to protective measures listed in Sections 7 and 8.

Environmental precautions

Environmental precautions Prevent further leakage or spillage if safe to do so. Do not allow material to contaminate ground water system. Local authorities should be advised if significant spillages cannot be contained.

Methods and material for containment and cleaning up

Methods for Containment Dike far ahead of liquid spill for later disposal.

Methods for cleaning up Contain spillage, and then collect with non-combustible absorbent material, (e.g. sand, earth, diatomaceous earth, vermiculite) and place in container for disposal according to local / national regulations (see section 13).

7. HANDLING AND STORAGE

Precautions for safe handling

Advice on safe handling Ensure adequate ventilation. Avoid contact with skin, eyes and clothing. Wash thoroughly after handling.

Conditions for safe storage, including any incompatibilities

Technical measures/Storage conditions Keep containers tightly closed in a dry, cool and well-ventilated place. Keep in properly labeled containers. Keep out of the reach of children.

Incompatible products Acids. Bases. Oxidizing agents.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION**Control parameters****Exposure Guidelines**

Chemical Name	ACGIH TLV	AIHA - Workplace Environmental Exposure Levels (WEELs) - TWAs	OSHA PEL	Advisory OEL
Hydroquinone 123-31-9	TWA: 1 mg/m ³		TWA: 2 mg/m ³	
Diethylene glycol 111-46-6	-	TWA: 10 mg/m ³	-	
Potassium hydroxide 1310-58-3	Ceiling: 2 mg/m ³		-	

Appropriate engineering controls

Engineering Measures Showers
Eyewash stations
Ventilation systems.

Individual protection measures, such as personal protective equipment

Eye/Face Protection Tightly fitting safety goggles. Face-shield.

Skin and body protection Protective work clothing. Impervious gloves.

Respiratory protection If exposure limits are exceeded or irritation is experienced, NIOSH/MSHA approved respiratory protection should be worn. Positive-pressure supplied air respirators may be required for high airborne contaminant concentrations. Respiratory protection must be provided in accordance with current local regulations.

Hygiene measures Remove and wash contaminated clothing before re-use.

9. PHYSICAL AND CHEMICAL PROPERTIES**PHYSICAL AND CHEMICAL PROPERTIES**

Physical state	liquid	Odor	Odorless
Appearance	Colorless	Odor Threshold	No information available
Color	Transparent light yellow		
Property	Values	Remarks/ • Method	
ph	11.1		
Melting point/range:		No information available	
Boiling point/boiling range	> 100 °C	No information available	
Flash Point	> 93.3 °C > 200 °F	No information available.	

Evaporation rate		No information available
Flammability (solid, gas)		No information available
upper flammability limit		
lower flammability limit		
Vapor pressure	23 hPa @ 20 °C	No information available
Vapor density		No information available
Specific Gravity		No information available
Water Solubility		No information available
Solubility in other solvents		No information available
Partition coefficient: n-octanol/water		No information available
Autoignition temperature		No information available
Decomposition temperature		No information available
Viscosity, kinematic		No information available
Viscosity, dynamic		No information available
Oxidizing Properties	No information available	
Explosive properties	No information available	
Other information		No information available
Softening point		No information available
Molecular Weight		No information available
Density		No information available
Bulk Density VALUE		No information available

10. STABILITY AND REACTIVITY

Reactivity

None under normal use conditions.

Chemical stability

Stable under recommended storage conditions.

Possibility of hazardous reactions

Contact with strong acids liberates sulfur dioxide.

Conditions to Avoid

None known.

Incompatible Materials

Acids. Bases. Oxidizing agents.

Hazardous Decomposition Products

Sulfur oxides. Carbon oxides.

11. TOXICOLOGICAL INFORMATION

Information on likely routes of exposure

Product Information

Inhalation	Inhalation of mist is expected to cause respiratory irritation. Contact with strong acids liberates sulfur dioxide.
Eye contact	Severely irritating to eyes.
Skin contact	May cause skin irritation and/or dermatitis. May cause sensitization by skin contact.

Ingestion

May be harmful if swallowed. May cause central nervous system depression. May cause adverse kidney effects. Some asthmatics or sulfite-sensitive individuals may experience wheezing, chest tightness, stomach upset, hives, faintness, weakness and diarrhea.

Toxicology data for the components

Chemical Name	Oral LD50	Dermal LD50	Inhalation LC50
Water 7732-18-5	90,000 mg/kg (Rat)	-	-
Potassium sulfite 10117-38-1	>3200 mg/kg (rat)	-	-
Hydroquinone 123-31-9	298 mg/kg (Rat) Oral LD50 Rat 298 mg/kg (Source: JAPAN_GHS)	> 4800 mg/kg (Rat)	-
Diethylene glycol 111-46-6	12565 mg/kg (Rat)	11890 mg/kg (Rabbit)	-
Potassium carbonate 584-08-7	> 2000 mg/kg (Rat) Oral LD50 Rat 2000 mg/kg (Source: ECHA)	>2000 mg/kg (Rabbit)	-
Sodium bromide 7647-15-6	3500 mg/kg (Rat) Oral LD50 Rat 3500 mg/kg (Source: NLM_CIP)	> 2000 mg/kg (Rabbit)	-
Potassium hydroxide 1310-58-3	284 mg/kg (Rat) Oral LD50 Rat 284 mg/kg (Source: JAPAN_GHS)	-	-
Glycine, N,N-bis[2-[bis(carboxymethyl)amino]ethyl]-, pentasodium salt 140-01-2	> 5000 mg/kg (rat)	> 2000 mg/kg	-
5H-Tetrazole-5-thione, 1,2-dihydro-1-phenyl- 86-93-1	>5000 mg/kg (Rat) 1750 mg/kg (Mouse)	-	-

Chemical Name	Other applicable information
Potassium sulfite	Moderate skin irritation
Hydroquinone	Moderate eye irritation Causes sensitization on guinea-pigs. Mild skin irritation Can be absorbed through skin. (1.1 ug/cm ² /hr) Negative in bacterial mutagenicity assays. Evidence for mutagenicity (chromosome breakage, sister-chromatid exchanges) in in vivo and in vitro animal studies. Hydroquinone has been classified as a Category 3 mutagen and carcinogen by the European Union based on testing of rats and mice given hydroquinone by stomach tube or at high dietary levels. The International Agency for Research on Cancer (IARC) under ranking for cancer potential has classified hydroquinone in Group 3, i.e. "not classifiable" as a carcinogen. In the European Union a Category 3 mutagen attracts the risk phrase R68 "Possible risk of irreversible effects" at concentrations above 1%, and a Category 3 carcinogen attracts the risk phrase R40 "Limited evidence of a carcinogenic effect" at concentrations above 1%. Exposure to products containing such substances should be controlled to below established control limits and special care should be taken with pregnant or breast-feeding women to ensure appropriate controls are in place to control the risk.
Diethylene glycol	Mild skin irritation Mild eye irritation Can cause kidney damage and CNS effects following ingestion. Repeated oral exposure to high doses can cause liver damage.
Sodium bromide	Ingestion of bromide salts can cause nausea, vomiting, headache, irritability, delirium, memory loss, decreased appetite, joint pain, hallucinations, stupor, coma, and acne like rash on face, legs, and trunk.

Potassium hydroxide	Severe skin irritation Causes eye burns
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Information on toxicological effects

Symptoms Allergic skin reactions including rash, dermatitis, irritation, and itching. Causes burns.

Delayed and immediate effects as well as chronic effects from short and long-term exposure

Sensitization May cause sensitization by skin contact.
mutagenic effects No specific testing was done on this product. Mutagenic testing of the hazardous ingredient in this product has resulted in some positive mutagenic results.

Carcinogenicity The European Union classifies this product as a carcinogen:
 - EU Carc.Cat.3. R40 - Limited evidence of a carcinogenic effect.

Chemical Name	ACGIH	IARC	NTP	OSHA
Hydroquinone 123-31-9	A3			

ACGIH: (American Conference of Governmental Industrial Hygienists)

A3 - Animal Carcinogen

Reproductive toxicity No information available.
STOT - single exposure No information available
STOT - repeated exposure No information available
Chronic toxicity Avoid repeated exposure. Prolonged exposure may cause chronic effects.
Target Organ Effects Skin, Eyes, Respiratory system, Central nervous system, Kidney, Liver.
Aspiration Hazard No information available.

Numerical measures of toxicity - Product Information**Unknown acute toxicity**

The following values are calculated based on chapter 3.1 of the GHS document .

ATEmix (oral) 2609 mg/kg
ATEmix (dermal) 28128 mg/kg

12. ECOLOGICAL INFORMATION**Ecotoxicity**

Very toxic to aquatic life.

0% of the mixture consists of components(s) of unknown hazards to the aquatic environment

Chemical Name	Toxicity to algae	Toxicity to fish	Toxicity to microorganisms	Toxicity to daphnia and other aquatic invertebrates
Potassium sulfite 10117-38-1		220 - 460: 96 h Leuciscus idus mg/L LC50 static		
Hydroquinone 123-31-9	0.335: 72 h Pseudokirchneriella subcapitata mg/L EC50	0.1 - 0.18: 96 h Pimephales promelas mg/L LC50 static 0.044: 96 h Oncorhynchus mykiss mg/L LC50 flow-through 0.044: 96 h Pimephales promelas mg/L LC50 flow-through 0.17: 96 h Brachydanio rerio mg/L LC50		0.29: 48 h Daphnia magna mg/L EC50
Diethylene glycol 111-46-6		75200: 96 h Pimephales promelas mg/L LC50 flow-through		84000: 48 h Daphnia magna mg/L EC50
Potassium carbonate 584-08-7				440 - 880: <24 h Daphnia magna mg/L LC50

Sodium bromide 7647-15-6	5800 - 24000: 96 h Scenedesmus pannonicus mg/L EC50	15614 - 17428: 96 h Pimephales promelas mg/L LC50 static 16000 - 24000: 96 h Poecilia reticulata mg/L LC50 flow-through 24000 - 96000: 96 h Oryzias latipes mg/L LC50 flow-through 16000: 96 h Poecilia reticulata mg/L LC50 semi-static 24000: 96 h Oryzias latipes mg/L LC50 semi-static 1000: 96 h Lepomis macrochirus mg/L LC50 static 1000: 96 h Oncorhynchus mykiss mg/L LC50 static	5700 - 10800: 48 h Daphnia magna mg/L EC50 Static 5800 - 48000: 48 h Daphnia magna mg/L EC50
Glycine, N,N-bis[2-[bis(carboxymethyl))amino]ethyl]-, pentasodium salt 140-01-2	2.6: 72 h Desmodesmus subspicatus mg/L EC50	1005 - 1250: 96 h Lepomis macrochirus mg/L LC50 static 300: 96 h Pimephales promelas mg/L LC50 static	500: 48 h Daphnia magna mg/L EC50

Persistence and degradability

No data is available on the product itself. Expected to be readily biodegradable.

Bioaccumulation:

No information available.

Chemical Name	log Pow
Hydroquinone 123-31-9	0.5
Diethylene glycol 111-46-6	-1.98

13. DISPOSAL CONSIDERATIONS

Waste Disposal Methods Should not be released into the environment. Dispose of in accordance with local regulations.

Contaminated packaging Do not re-use empty containers. Dispose of in accordance with local regulations.

14. TRANSPORT INFORMATION

The information given below is provided to assist in documentation. It may supplement the information on the package. The package in your possession may carry a different version of the label depending on the date of manufacture. Depending on inner packaging quantities and packaging instructions, it may be subject to specific regulatory exceptions. Please consult the product packaging for further details.

DOT

UN/ID No	UN3082
Proper Shipping Name	Environmentally hazardous substance, liquid, n.o.s.
Technical Name	Hydroquinone
Hazard class	9
Packing Group	III
Special Provisions	8, 146, 173, 335, IB3, T4, TP1, TP29
Emergency Response Guide Number	171
Description	UN3082, Environmentally hazardous substance, liquid, n.o.s (Hydroquinone), 9, III, Limited Quantity

TDG

UN/ID No	UN3082
Proper Shipping Name	Environmentally hazardous substance, liquid, n.o.s.
Technical Name	Hydroquinone
Hazard class	9
Packing Group	III
Description	UN3082, Environmentally hazardous substance, liquid, n.o.s (Hydroquinone), 9, III, Limited Quantity

ICAO/IATA

UN/ID No	UN3082
Proper Shipping Name	Environmentally hazardous substance, liquid, n.o.s.
Technical Name	Hydroquinone
Hazard class	9
Packing Group	III
ERG Code	9L
Special Provisions	A97, A158
Description	UN3082, Environmentally hazardous substance, liquid, n.o.s (Hydroquinone), 9, III, Limited Quantity

IMDG/IMO

UN/ID No	UN3082
Proper Shipping Name	Environmentally hazardous substance, liquid, n.o.s.
Technical Name	Hydroquinone
Hazard class	9
Packing Group	III
EmS No.	F-A, S-F
Special Provisions	274, 335
Description	UN3082, Environmentally hazardous substance, liquid, n.o.s (Hydroquinone), 9, III, Limited Quantity

For transportation information, go to: <http://ship.carestream.com>

15. REGULATORY INFORMATION

International Inventories

TSCA	Complies
DSL/NDSL	Complies
EINECS/ELINCS	Complies
ENCS	Complies
IECSC	Complies
KECL	Complies
PICCS	Complies
AICS	Complies
NZIoC	Complies

Legend

EINECS/ELINCS - European Inventory of Existing Commercial Chemical Substances/EU List of Notified Chemical Substances

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

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

ENCS - Japan Existing and New Chemical Substances

IECSC - China Inventory of Existing Chemical Substances

KECL - Korean Existing and Evaluated Chemical Substances

PICCS - Philippines Inventory of Chemicals and Chemical Substances

AICS - Australian Inventory of Chemical Substances

NZIoC - New Zealand Inventory of Chemicals

16. OTHER INFORMATION

Issuing date	2015-09-17
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Revision Note	Initial Release

Disclaimer

The information provided on this MSDS is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guide for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered as a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other material or in any process, unless specified in the text