Carestream

MATERIAL SAFETY DATA SHEET

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

Identification of the substance or mixture

Product name: INDUSTREX Single Part Developer Replenisher

Product code: 6620025

Use of the Substance/Mixture

Product Use: Photographic chemical, Restricted to professional users.

Company/Undertaking Identification

Carestream Health Korea Ltd
4F Shinyoung B/D 46-10, Jamwon-dong, Seocho-gu, Seoul 137-906, Korea
T: +82-2-3438-7300

For further information, please contact:
For environment, health and safety information, email: WW-EHS@carestreamhealth.com

Emergency telephone

Emergency Transportation/CHEMTREC (24 HOUR) 00-308-13-2549

2. HAZARDS IDENTIFICATION

Classification of the substance or mixture

Serious eye damage/eye irritation	Category 1
Skin sensitization	Category 1
Germ Cell Mutagenicity	Category 2
Carcinogenicity	Category 2
Acute aquatic toxicity	Category 1
Corrosive to Metals	Category 1

GHS Label elements, including precautionary statements

DANGER

Hazard statements
H318 - Causes serious eye damage
H317 - May cause an allergic skin reaction
H341 - Suspected of causing genetic defects
H351 - Suspected of causing cancer
H400 - Very toxic to aquatic life
H290 - May be corrosive to metals

Precautionary Statements
P201 - Obtain special instructions before use
P202 - Do not handle until all safety precautions have been read and understood
P261 - Avoid breathing dust/ fume/ gas/ mist/ vapors/ spray
P264 - Wash face, hands and any exposed skin thoroughly after handling
P280 - Wear protective gloves/ protective clothing/ eye protection/ face protection
P272 - Contaminated work clothing should not be allowed out of the workplace
P273 - Avoid release to the environment
P305 + P351 + P338 - IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing
P337 + P313 - If eye irritation persists: Get medical advice/ attention
P302 + P352 - IF ON SKIN: Wash with plenty of soap and water
P333 + P313 - If skin irritation or rash occurs: Get medical advice/ attention
P363 - Wash contaminated clothing before reuse
P390 - Absorb spillage to prevent material damage
P404 - Store in a closed container
P405 - Store locked up
P406 - Store in corrosive resistant container with a resistant inliner
P501 - Dispose of contents/ container to an approved waste disposal plant

Other hazards which do not result in classification

Contact with strong acids liberates sulfur dioxide
May be irritating to the skin.

3. COMPOSITION/INFORMATION ON INGREDIENTS

Chemical Name	Weight %
Water	>60
Potassium sulfite	10-20
Hydroquinone	5-10

Potassium carbonate	1-5
Sodium bromide	1-5
Glycine, N,N-bis[2-[bis(carboxymethyl)amino]ethyl]-, pentasodium salt	1-5

4. FIRST AID MEASURES

Description of necessary first-aid measures

General advice IN CASE OF SERIOUS OR PERSISTENT CONDITIONS, CALL A DOCTOR OR EMERGENCY MEDICAL CARE.

Main Symptoms Irritation
May cause an allergic skin reaction

Eye contact Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. Get medical attention immediately if symptoms occur.

Skin contact Wash off immediately with plenty of water for at least 15 minutes. Remove and wash contaminated clothing before re-use. Get medical attention immediately if symptoms occur.

Inhalation Move to fresh air. If breathing is difficult, give oxygen. Get medical attention immediately if symptoms occur.

Ingestion If swallowed, call a poison control center or doctor immediately. Do not induce vomiting without medical advice. Clean mouth with water and afterwards drink plenty of water. Never give anything by mouth to an unconscious person.

Most important symptoms/effects, acute and delayed

Skin contact May cause skin irritation and/or dermatitis. Prolonged or repeated contact may dry skin and cause irritation.

Eye contact Causes eye irritation.

Inhalation No hazard from product as supplied. May cause irritation of respiratory tract. Contact with strong acids liberates sulfur dioxide.

Ingestion May be harmful if swallowed. Ingestion may cause gastrointestinal irritation, nausea, vomiting and diarrhea. Some asthmatics or sulfite-sensitive individuals may experience wheezing, chest tightness, stomach upset, hives, faintness, weakness and diarrhea.

Indication of immediate medical attention and special treatment needed, if necessary

Notes to physician Treat symptomatically.

5. FIRE-FIGHTING MEASURES

Suitable Extinguishing Media

Suitable Extinguishing Media Carbon dioxide (CO_2). Dry chemical. Foam.

Extinguishing media which shall not be used for safety reasons No information available.

Specific hazards arising from the chemical

Special Hazard — Hazardous decomposition products due to incomplete combustion.

Special protective actions for fire-fighters

Special protective equipment for fire-fighters — Wear self-contained breathing apparatus and protective suit.

Other information

Other information — None known.

6. ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures

For personal protection see section 8. Ensure adequate ventilation.

Environmental precautions

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

Methods and materials for containment and cleaning up

Prevent further leakage or spillage if safe to do so.
Use a non-combustible material like vermiculite, sand or earth to soak up the product and place into a container for later disposal.

Other information

See Section 12 for additional Ecological information.

7. HANDLING AND STORAGE

Precautions for safe handling

Advice on safe handling — Avoid contact with skin, eyes and clothing. Avoid breathing vapors or mists. Ensure adequate ventilation. Wash thoroughly after handling.

Conditions for safe storage, including any incompatibilities

Technical measures/Storage conditions — Keep container tightly closed in a dry and well-ventilated place.

Materials to Avoid — Oxidizing agents. Strong acids.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Control parameters

Exposure limits

Chemical Name	Korea
Hydroquinone	TWA 2 mg/m³

Appropriate engineering controls

Engineering Measures Apply technical measures to comply with the occupational exposure limits. When working in confined spaces (tanks, containers, etc.), ensure that there is a supply of air suitable for breathing and wear the recommended equipment.

Individual protection measures, such as personal protective equipment (PPE)

Personal Protective Equipment

General Information	If the product is used in mixtures, it is recommended that you contact the appropriate protective equipment suppliers. These recommendations apply to the product as supplied.
Respiratory protection	If exposure limits are exceeded or irritation is experienced, NIOSH/MSHA approved respiratory protection should be worn. Respiratory protection must be provided in accordance with current local regulations.
Eye Protection	Tightly fitting safety goggles
Skin and body protection	Wear suitable protective clothing. Protective shoes or boots.
Hand Protection	Protective gloves

Hygiene measures When using, do not eat, drink or smoke. Remove and wash contaminated clothing before re-use. Provide regular cleaning of equipment, work area and clothing.

9. PHYSICAL AND CHEMICAL PROPERTIES

Physical state liquid
ph 10.7
Flash point: Does not flash
Boiling point/boiling range 100 °C

Odor Odorless
Color colorless - light yellow
Autoignition temperature: No information available

Vapor Pressure 24 mbar @ 20 °C
Vapor density 0.6
Density No information available
Water Solubility completely soluble
Melting point/range: No information available
Specific Gravity 1.26
Bulk Density: No information available

10. STABILITY AND REACTIVITY

Reactivity

No dangerous reaction known under conditions of normal use.

Chemical stability

Stable under recommended storage conditions.

Possibility of hazardous reactions

Contact with strong acids liberates sulfur dioxide.

Conditions to Avoid

Heat, flames and sparks.

Materials to Avoid

Oxidizing agents. Strong acids.

Hazardous Decomposition Products

Carbon oxides, Sulfur oxides.

11. TOXICOLOGICAL INFORMATION

Acute toxicity Product Information.

Skin contact May cause skin irritation and/or dermatitis. Prolonged or repeated contact may dry skin and cause irritation.

Eye contact Causes eye irritation.

Inhalation No hazard from product as supplied. May cause irritation of respiratory tract. Contact with strong acids liberates sulfur dioxide.

Ingestion May be harmful if swallowed. Ingestion may cause gastrointestinal irritation, nausea, vomiting and diarrhea. Some asthmatics or sulfite-sensitive individuals may experience wheezing, chest tightness, stomach upset, hives, faintness, weakness and diarrhea.

Acute toxicity 24.815% of the mixture consists of ingredient(s) of unknown toxicity

Oral 4,337.43 mg/kg

Dermal 23,699.09 mg/kg

Acute toxicity - Component Information

Chemical Name	LD50 Oral	LD50 Dermal	LC50 Inhalation
Water	90,000 mg/kg (Rat)		
Hydroquinone	320 mg/kg (Rat)	> 4800 mg/kg (Rat)	
Potassium carbonate	1870 mg/kg (Rat)	>2000 mg/kg (Rabbit)	
Sodium bromide	3400 mg/kg (Rat)	> 2000 mg/kg (Rabbit)	

Chemical Name	Other applicable information
Potassium sulfite	Mild skin irritation - Moderate skin irritation

Hydroquinone	Moderate eye irritation Causes sensitization on guinea-pigs Mild skin irritation Can be absorbed through skin (1.1 ug/cm2/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.
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.

Aggravated Medical Conditions Preexisting eye disorders, Skin disorders, Respiratory disorders.

Subchronic toxicity

no data available

Chronic toxicity

Chronic toxicity Effects expected to be similar to those seen acutely.

Sensitization This mixture contains hydroquinone which is classified as a dermal sensitizer in some jurisdictions. A very similar mixture was negative in dermal sensitization studies with and without prior sensitization to hydroquinone. Based on the results of these studies, this mixture is not expected to present a dermal sensitization hazard to humans.

Neurological effects No information available.

Target Organ Effects Skin, Eyes, Respiratory system, Reproductive system.

CMR Effects

Carcinogenicity Contains a known or suspected carcinogen.

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.

Reproductive toxicity Contains ingredients that are suspected reproductive hazards. However, based on available data the product should not be classified for reproductive effects.

12. ECOLOGICAL INFORMATION

Ecotoxicity

Very toxic to aquatic organisms

Acute aquatic toxicity Product Information
No information available

Acute aquatic toxicity Component Information

Chemical Name	Toxicity to algae	Toxicity to fish	Toxicity to daphnia and other aquatic invertebrates
Potassium sulfite		LC50 220 - 460 mg/L Leuciscus idus 96 h	
Hydroquinone	13.5 mg/L EC50 120 h (Desmodesmus subspicatus) 0.335 mg/L EC50 72 h (Pseudokirchneriella subcapitata)	LC50= 0.044 mg/L Oncorhynchus mykiss 96 h LC50= 0.044 mg/L Pimephales promelas 96 h LC50 0.1 - 0.18 mg/L Pimephales promelas 96 h LC50= 0.17 mg/L Brachydanio rerio 96 h	EC50 = 0.29 mg/L 48 h (Daphnia magna)
Sodium bromide	5800 - 24000 mg/L EC50 96 h (Scenedesmus pannonicus)	LC50 24000 - 96000 mg/L Oryzias latipes 96 h LC50= 24000 mg/L Oryzias latipes 96 h LC50 16000 - 24000 mg/L Poecilia reticulata 96 h LC50= 16000 mg/L Poecilia reticulata 96 h LC50 15614 - 17428 mg/L Pimephales promelas 96 h LC50> 1000 mg/L Lepomis macrochirus 96 h LC50 0.054 - 0.081 mg/L Oncorhynchus mykiss 96 h LC50> 1000 mg/L Oncorhynchus mykiss 96 h	EC50 5800 - 48000 mg/L 48 h (Daphnia magna) EC50 5700 - 10800 mg/L 48 h (Daphnia magna)
Glycine, N,N-bis[2-[bis(carboxymethyl)amino]ethyl]-, pentasodium salt	2.6 mg/L EC50 72 h (Desmodesmus subspicatus)	LC50> 300 mg/L Pimephales promelas 96 h LC50 1005 - 1250 mg/L Lepomis macrochirus 96 h	EC50 > 500 mg/L 48 h (Daphnia magna)

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

Bioaccumulative potential
No information available

Chemical Name	log Pow
Hydroquinone	0.5
Glycine, N,N-bis[2-[bis(carboxymethyl)amino]ethyl]-, pentasodium salt	-3.05

Mobility in soil
No information available

13. DISPOSAL CONSIDERATIONS

Waste from Residues / Unused Products 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.

ADR/RID

UN/ID No	UN3266
Proper Shipping Name	Corrosive liquid, basic, inorganic, n.o.s.
Technical Name	Hydroquinone, Potassium carbonate
Hazard class	8
Packing Group	III
Classification Code	C5
ADR/RID-Labels	8
Special Provisions	274
ADR Hazard Id (Kemmler Number)	80
Limited Quantity	5 L

IMDG/IMO

UN/ID No	UN3266
Proper Shipping Name	Corrosive liquid, basic, inorganic, n.o.s.
Technical Name	Hydroquinone, Potassium carbonate
Hazard class	8
Packing Group	III
Marine Pollutant	P
Marine pollutant	Hydroquinone
EmS No.	F-A, S-B
Special Provisions	223, 274
Limited quantity DFDA	5 L

ICAO/IATA

UN/ID No	UN3266
Proper Shipping Name	Corrosive liquid, basic, inorganic, n.o.s.
Technical Name	Hydroquinone, Potassium carbonate
Hazard class	8
Packing Group	III
ERG Code	8L
Special Provisions	A3, A803
Limited quantity DFDA	1 L

ADN

UN/ID No	UN3266
Proper Shipping Name	Corrosive liquid, basic, inorganic, n.o.s.
Technical Name	Hydroquinone, Potassium carbonate
Hazard class	8
Packing Group	III
Classification Code	C5
Special Provisions	274
Limited quantity DFDA	5 L

DOT

UN/ID No	UN3266
Proper Shipping Name	Corrosive liquid, basic, inorganic, n.o.s.
Technical Name	Hydroquinone, Potassium carbonate
Hazard class	8
Packing Group	III
Special Provisions	IB3, T7, TP1, TP28

TDG

UN/ID No	UN3266
Proper Shipping Name	Corrosive liquid, basic, inorganic, n.o.s.

Technical Name	Hydroquinone, Potassium carbonate
Hazard class	8
Packing Group	III

This product meets the requirements of the limited quantity exemption. The shipping case will be marked as a limited quantity. It does not require other labeling or placarding except if transported by aircraft. For transportation information, go to: http://ship.carestreamhealth.com.

15. REGULATORY INFORMATION

International Inventories

EINECS/ELINCS	Does not comply
TSCA	Complies
DSL/NDSL	Does not comply
ENCS	Complies
IECSC	Does not comply
KECL	Does not comply
PICCS	Does not comply
AICS	Complies
NZIoC	Does not comply

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

National regulatory information

Chemical Name	Toxic Chemicals Control Law	Toxic Release Inventory Chemicals - Group 1	Toxic Release Inventory Chemicals - Group 2
Hydroquinone	2010-1-610 *	not applicable	not applicable

16. OTHER INFORMATION

Revision Date	2013-03-13
Revision Note	Classification update, Product name

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

End of Material Safety Data Sheet