

**MATERIAL SAFETY DATA SHEET**

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Version 2

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

**Product name:** KODAK INDUSTREX LO Fixer and Replenisher, Working solution

**Product code:** 1634559WS

**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.

2. HAZARDS IDENTIFICATION

**CAUTION!**

**Emergency Overview**  
May cause eye irritation

<b>Physical state</b> liquid	<b>Odor</b> Ammonia	<b>Color</b> colorless
<b>HMIS</b>	<b>Health Hazard</b> - 1*	<b>Flammability</b> - 1
		<b>Physical</b> - 0 <b>Hazard</b>

**Potential Health Effects**

<b>Eyes</b>	May cause irritation.
<b>Skin</b>	Repeated or prolonged skin contact may cause allergic reactions with susceptible persons.
<b>Inhalation</b>	Some asthmatics or sulfite-sensitive individuals may experience wheezing, chest tightness, stomach upset, hives, faintness, weakness and diarrhea. Contact with strong acids liberates sulfur dioxide. May cause irritation of respiratory tract.
<b>Ingestion</b>	May be harmful if swallowed. Some asthmatics or sulfite-sensitive individuals may experience wheezing, chest tightness, stomach upset, hives, faintness, weakness and diarrhea.
<b>Chronic Effects</b>	
<b>Chronic toxicity</b>	Prolonged exposure may cause chronic effects.
<b>Aggravated Medical Conditions</b>	None known.
<b>Environmental hazard</b>	See Section 12 for additional Ecological Information.

3. COMPOSITION/INFORMATION ON INGREDIENTS

Hazardous

Chemical Name	CAS-No	Weight %
Ammonium thiosulfate	7783-18-8	10-20
Sodium bisulfite	7631-90-5	1-5

Sodium borate	1330-43-4	<1
Acetic acid	64-19-7	0.1-1
Non-Hazardous		
<b>Chemical Name</b>	<b>CAS-No</b>	<b>Weight %</b>
Water	7732-18-5	>60
Sodium acetate	127-09-3	1-5

**4. FIRST AID MEASURES**

<b>General advice</b>	IN CASE OF SERIOUS OR PERSISTENT CONDITIONS, CALL A DOCTOR OR EMERGENCY MEDICAL CARE.
<b>Eye contact</b>	Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. Get medical attention immediately if symptoms occur.
<b>Skin contact</b>	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.
<b>Inhalation</b>	Move to fresh air. If breathing is difficult, give oxygen. Get medical attention immediately if symptoms occur.
<b>Ingestion</b>	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.
<b>Notes to physician</b>	Treat symptomatically.

**5. FIRE-FIGHTING MEASURES**

<b>Flash point:</b>	Does not flash
<b>Suitable Extinguishing Media</b>	Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.
<b>Unsuitable Extinguishing Media</b>	Do not use a solid water stream as it may scatter and spread fire.
<b>Hazardous Combustion Products</b>	Carbon oxides, Nitrogen oxides (NOx), Sulfur oxides.

**Specific hazards arising from the chemical**  
 Dried product residue can act as a reducing agent. Reacts violently with oxidizing materials. May cause spontaneous heating and ignition when absorbed on combustible, porous material (e.g. rags, paper, sawdust, cotton, clothing).

**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.

**NFPA**                      **Health Hazard - 1**                      **Flammability - 1**                      **Stability - 0**

**6. ACCIDENTAL RELEASE MEASURES**

<b>Personal precautions</b>	Ensure adequate ventilation. For personal protection see section 8.
<b>Methods for Containment</b>	Prevent further leakage or spillage if safe to do so.

**Methods for cleaning up** 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 information.

7. HANDLING AND STORAGE

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

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

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

**Exposure Guidelines**

Chemical Name	ACGIH TLV	AIHA - Workplace Environmental Exposure Levels (WEELs) - TWAs	OSHA PEL	Advisory OEL
Sodium bisulfite 7631-90-5	TWA: 5 mg/m <sup>3</sup>			
Sodium borate 1330-43-4	STEL 6 mg/m <sup>3</sup> TWA: 2 mg/m <sup>3</sup>			
Acetic acid 64-19-7	STEL 15 ppm TWA: 10 ppm		TWA: 10 ppm TWA: 25 mg/m <sup>3</sup>	

**Occupational Exposure Controls**

**Engineering Measures** Ensure adequate ventilation. Apply technical measures to comply with the occupational exposure limits.

**Personal Protective Equipment**

**General Information** These recommendations apply to the product as supplied.

**Respiratory protection** Use only with adequate ventilation. If exposure limits are exceeded or irritation is experienced, NIOSH/MSHA approved respiratory protection should be worn.

**Eye/Face Protection** Safety glasses with side-shields. If splashes are likely to occur, wear:: Goggles.

**Skin and body protection** Wear suitable protective clothing.

**Hand Protection** Impervious gloves.

**Other Protective Equipment** Ensure that eyewash stations and safety showers are close to the workstation location.

9. PHYSICAL AND CHEMICAL PROPERTIES

**Physical state** liquid

**ph** 4.8 - 5.0

**Flash point:** Does not flash

**Boiling point/boiling range** > 100 °C

**Odor** Ammonia

**Color** colorless

**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** No information available**Bulk Density:** No information available**10. STABILITY AND REACTIVITY****Stability** Stable under normal conditions.**Incompatible products** Acids. Strong bases. Oxidizing agents. Halogenated compounds. Contact with strong acids liberates sulfur dioxide.**Conditions to Avoid** Heat, flames and sparks. Take precautionary measures against static discharges.**Hazardous Decomposition Products** Ammonia. Chloramine. Sulfur oxides. Nitrogen oxides (NOx).**Hazardous Polymerization** Hazardous polymerization does not occur.**11. TOXICOLOGICAL INFORMATION**Acute toxicity - Product Information**Skin** Repeated or prolonged skin contact may cause allergic reactions with susceptible persons.**Eyes** May cause irritation.**Inhalation** Some asthmatics or sulfite-sensitive individuals may experience wheezing, chest tightness, stomach upset, hives, faintness, weakness and diarrhea. Contact with strong acids liberates sulfur dioxide. May cause irritation of respiratory tract.**Ingestion** May be harmful if swallowed. Some asthmatics or sulfite-sensitive individuals may experience wheezing, chest tightness, stomach upset, hives, faintness, weakness and diarrhea.Acute toxicity - Component Information

Chemical Name	Oral LD50	Dermal LD50	Inhalation LC50
Water	90,000 mg/kg ( Rat )		
Ammonium thiosulfate	> 2000 mg/kg ( Rat )		
Sodium acetate	3530 mg/kg ( Rat )	10 g/kg ( Rabbit ) Dermal LD50 Rabbit >10 g/kg (Source: IUCLID)	30 g/m <sup>3</sup> ( Rat ) 1 h Inhalation LC50 Rat >30 g/m <sup>3</sup> 1 h (Source: IUCLID)
Sodium bisulfite	1420 mg/kg ( Rat )		
Sodium borate	2660 mg/kg ( Rat ) Oral LD50 Rat 2660 mg/kg (Source: JAPAN_GHS)	2000 mg/kg ( Rabbit ) Dermal LD50 Rabbit >2000 mg/kg (Source: IUCLID)	
Acetic acid	3310 mg/kg ( Rat )	1060 mg/kg ( Rabbit )	11.4 mg/L ( Rat ) 4 h Inhalation LC50 Rat 11.4 mg/L 4 h (Source: NLM_CIP)

Chemical Name	Other applicable information
Sodium borate	Based on repeated-dose ingestion studies in animals, may cause adverse reproductive and developmental effects. However, the doses administered were many times those to which humans would normally be exposed.

Acetic acid	<p>Severe eye irritation Severe skin irritation</p> <p>Acute overexposure to extremely high airborne concentrations of respiratory irritants has been associated with development of an asthma-like reactive airways syndrome (RADS) in susceptible individuals. Extremely high airborne concentrations are not generated during normal conditions of use but may occur following a spill. The potential to generate extremely high airborne concentrations in a spill situation depends upon physical factors such as the concentration of the solution, the volume of the spill, the surface area of the spill, the size of the room where the spill occurred, and the ventilation rate in the room.</p>
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<b>Subchronic toxicity</b>	No information available
<b>Chronic toxicity</b>	Prolonged exposure may cause chronic effects.
<b>Carcinogenicity</b>	Contains no ingredient listed as a carcinogen.
<b>Sensitization</b>	May cause sensitization of susceptible persons.
<b>Reproductive toxicity</b>	Contains a known or suspected reproductive toxin. However, based on available data the product should not be classified for reproductive effects.
<b>Target Organ Effects</b>	Eyes, Skin, Respiratory system.

12. ECOLOGICAL INFORMATION

**Ecotoxicity**

**Ecotoxicity effects** The environmental impact of this product has not been fully investigated.

Component Information

Chemical Name	Toxicity to algae	Toxicity to fish	Toxicity to daphnia and other aquatic invertebrates
Sodium acetate			1000: 48 h Daphnia magna mg/L EC50
Sodium bisulfite			119: 48 h Daphnia magna mg/L EC50
Sodium borate	2.6 - 21.8: 96 h Pseudokirchneriella subcapitata mg/L EC50 static 158: 96 h Desmodesmus subspicatus mg/L EC50	340: 96 h Limanda limanda mg/L LC50	1085 - 1402: 48 h Daphnia magna mg/L LC50
Acetic acid		75: 96 h Lepomis macrochirus mg/L LC50 static 79: 96 h Pimephales promelas mg/L LC50 static	65: 48 h Daphnia magna mg/L EC50 Static

**Persistence and degradability** Expected to be readily biodegradable

**Bioaccumulation:** - No information available

**Mobility** - No information available

Chemical Name	log Pow
Acetic acid	-0.31

13. DISPOSAL CONSIDERATIONS

**Waste Disposal Methods** 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** Not regulated

**TDG** Not regulated

**ICAO/IATA** Not regulated

**IMDG/IMO** Not regulated

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

## 15. REGULATORY INFORMATION

This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations (CPR) and the MSDS contains all the information required by the CPR.

**WHMIS Hazard Class**

Non-controlled

### International Inventories

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

**Disclaimer for Label**

The data below reflects current legislative requirements whereas the product in your possession may carry a different version of the label depending on the date of manufacture.

**CAUTION!**

- Contains:

Hazardous Components

Chemical Name	CAS-No	Weight %
Ammonium thiosulfate	7783-18-8	10-20
Sodium bisulfite	7631-90-5	1-5
Sodium borate	1330-43-4	<1
Acetic acid	64-19-7	0.1-1

May cause eye irritation.

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

Additional information is given in the Material Safety Data Sheet.

**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

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