

Material Safety Data Sheet

Canada
English

Section 1. Chemical product and company identification

Product name Reagent B (Initiator); part of 'IntenSE™ M Silver Enhancement Kit'

Catalogue Number RPN491



Component Number RPN491V1

Material uses Industrial applications: Analytical chemistry. Research.

Product type Liquid.

Validation date 7 May 2014

Print date 07 May 2014

Supplier GE Healthcare UK Ltd
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In case of emergency

US	ChemTrec (US)	1-800-424-9300
Canada	ChemTrec (US)	1-703-527-3887

2. Hazards identification

Physical state Liquid.

Color Colorless.

Odor Not available.

Signal word WARNING!

Hazard statements HARMFUL IF SWALLOWED. CAUSES RESPIRATORY TRACT, EYE AND SKIN IRRITATION. MAY CAUSE ALLERGIC SKIN REACTION. CONTAINS MATERIAL THAT MAY CAUSE TARGET ORGAN DAMAGE, BASED ON ANIMAL DATA. POSSIBLE CANCER HAZARD - CONTAINS MATERIAL WHICH MAY CAUSE CANCER, BASED ON ANIMAL DATA.

Precautionary measures Do not handle until all safety precautions have been read and understood. Obtain special instructions before use. Do not breathe vapor or mist. Do not ingest. Use only with adequate ventilation. Do not eat, drink or smoke when using this product. Avoid contact with eyes, skin and clothing. Keep container tightly closed. Use personal protective equipment as required. Wash thoroughly after handling.

Routes of entry Dermal contact. Eye contact. Inhalation. Ingestion.

Potential acute health effects

Eyes Severely irritating to eyes. Risk of serious damage to eyes.
Skin Irritating to skin. May cause sensitization by skin contact.
Inhalation Irritating to respiratory system.
Ingestion Toxic if swallowed.

Potential chronic health effects

Chronic effects Contains material that may cause target organ damage, based on animal data. Once sensitized, a severe allergic reaction may occur when subsequently exposed to very low levels.
Carcinogenicity Contains material which may cause cancer, based on animal data. Risk of cancer depends on duration and level of exposure.
Mutagenicity No known significant effects or critical hazards.
Teratogenicity No known significant effects or critical hazards.
Developmental effects No known significant effects or critical hazards.
Fertility effects No known significant effects or critical hazards.
Target organs Contains material which may cause damage to the following organs: blood, kidneys, liver, upper respiratory tract, skin, central nervous system (CNS), eye, lens or cornea.



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Inhalation	Adverse symptoms may include the following: respiratory tract irritation coughing
Ingestion	No specific data.
Skin	Adverse symptoms may include the following: irritation redness
Eyes	Adverse symptoms may include the following: pain or irritation watering redness
Medical conditions aggravated by over-exposure	Pre-existing skin disorders and disorders involving any other target organs mentioned in this MSDS as being at risk may be aggravated by over-exposure to this product.

See toxicological information (Section 11)

3. Composition/information on ingredients

Name			CAS number	% by weight
1,4-dihydroxybenzene	123-31-9	2 - 5	-	
1,2,3-Propanetricarboxylic acid, 2-hydroxy-, hydrate (1:1)	5949-29-1	<2	-	

There are no additional ingredients present which, within the current knowledge of the supplier and in the concentrations applicable, are classified as hazardous to health or the environment and hence require reporting in this section.

Section 4. First aid measures

Eye contact	Check for and remove any contact lenses. Immediately flush eyes with plenty of water for at least 15 minutes, occasionally lifting the upper and lower eyelids. Get medical attention immediately.
Skin contact	In case of contact, immediately flush skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes. Wash clothing before reuse. Clean shoes thoroughly before reuse. Get medical attention immediately.
Inhalation	Move exposed person to fresh air. If not breathing, if breathing is irregular or if respiratory arrest occurs, provide artificial respiration or oxygen by trained personnel. Loosen tight clothing such as a collar, tie, belt or waistband. Get medical attention immediately.
Ingestion	Wash out mouth with water. Do not induce vomiting unless directed to do so by medical personnel. Never give anything by mouth to an unconscious person. Get medical attention immediately.
Protection of first-aiders	No action shall be taken involving any personal risk or without suitable training. If it is suspected that fumes are still present, the rescuer should wear an appropriate mask or self-contained breathing apparatus. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation. Wash contaminated clothing thoroughly with water before removing it, or wear gloves.

Section 5. Fire-fighting measures

Flammability of the product	In a fire or if heated, a pressure increase will occur and the container may burst.
Extinguishing media	
Suitable	Use an extinguishing agent suitable for the surrounding fire.
Not suitable	None known.
Special exposure hazards	Promptly isolate the scene by removing all persons from the vicinity of the incident if there is a fire. No action shall be taken involving any personal risk or without suitable training.
Special protective equipment for fire-fighters	Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode.

Section 6. Accidental release measures

Personal precautions	No action shall be taken involving any personal risk or without suitable training. Evacuate surrounding areas. Keep unnecessary and unprotected personnel from entering. Do not touch or walk through spilled material. Do not breathe vapor or mist. Provide adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Put on appropriate personal protective equipment (see Section 8).
Environmental precautions	Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers. Inform the relevant authorities if the product has caused environmental pollution (sewers, waterways, soil or air).
Methods for cleaning up	Stop leak if without risk. Move containers from spill area. Approach release from upwind. Prevent entry into sewers, water courses, basements or confined areas. Wash spillages into an effluent treatment plant or proceed as follows. Contain and collect spillage with non-combustible, absorbent material e.g. sand, earth, vermiculite or diatomaceous earth and place in container for disposal according to local regulations (see Section 13). Dispose of via a licensed waste disposal contractor. Contaminated absorbent material may pose the same hazard as the spilled product. Note: see Section 1 for emergency contact information and Section 13 for waste disposal.
Small spill	Stop leak if without risk. Move containers from spill area. Dilute with water and mop up if water-soluble. Alternatively, or if water-insoluble, absorb with an inert dry material and place in an appropriate waste disposal container. Dispose of via a licensed waste disposal contractor.



Section 7. Handling and storage

Handling

Put on appropriate personal protective equipment (see Section 8). Eating, drinking and smoking should be prohibited in areas where this material is handled, stored and processed. Workers should wash hands and face before eating, drinking and smoking. Remove contaminated clothing and protective equipment before entering eating areas. Persons with a history of skin sensitization problems should not be employed in any process in which this product is used. Do not get in eyes or on skin or clothing. Do not breathe vapor or mist. Do not ingest. Use only with adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Keep in the original container or an approved alternative made from a compatible material, kept tightly closed when not in use. Empty containers retain product residue and can be hazardous. Do not reuse container.

Storage

Store in accordance with local regulations. Store in original container protected from direct sunlight in a dry, cool and well-ventilated area, away from incompatible materials (see Section 10) and food and drink. Keep container tightly closed and sealed until ready for use. Containers that have been opened must be carefully resealed and kept upright to prevent leakage. Do not store in unlabeled containers. Use appropriate containment to avoid environmental contamination.

Section 8. Exposure controls/personal protection

Occupational exposure limits

Ingredient	List name	TWA (8 hours)			STEL (15 mins)			Ceiling			Notations
		ppm	mg/ m ³	Other	ppm	mg/ m ³	Other	ppm	mg/ m ³	Other	
1,4-dihydroxybenzene	US ACGIH 3/2012	-	1	-	-	-	-	-	-	-	[3] [A]
	AB 4/2009	-	2	-	-	-	-	-	-	-	
	BC 4/2012	-	1	-	-	-	-	-	-	-	[3]
	ON 7/2010	-	1	-	-	-	-	-	-	-	[3]
	QC 9/2011	-	2	-	-	-	-	-	-	-	

[3]Skin sensitization

Notes: [A]1996 Adoption Substances for which the TLV is higher than the OSHA Permissible Exposure Limit (PEL) and/or the NIOSH Recommended Exposure Limit (REL). See CFR 58(124):36338-33351, June 30, 1993, for revised OSHA PEL. Refers to Appendix A -- Carcinogens.

Consult local authorities for acceptable exposure limits.

Recommended monitoring procedures

If this product contains ingredients with exposure limits, personal, workplace atmosphere or biological monitoring may be required to determine the effectiveness of the ventilation or other control measures and/or the necessity to use respiratory protective equipment. Reference should be made to appropriate monitoring standards. Reference to national guidance documents for methods for the determination of hazardous substances will also be required.

Engineering measures

Use only with adequate ventilation. If user operations generate dust, fumes, gas, vapor or mist, use process enclosures, local exhaust ventilation or other engineering controls to keep worker exposure to airborne contaminants below any recommended or statutory limits.

Hygiene measures

Wash hands, forearms and face thoroughly after handling chemical products, before eating, smoking and using the lavatory and at the end of the working period. Appropriate techniques should be used to remove potentially contaminated clothing. Contaminated work clothing should not be allowed out of the workplace. Wash contaminated clothing before reusing. Ensure that eyewash stations and safety showers are close to the workstation location.

Personal protection

Respiratory

Use a properly fitted, air-purifying or air-fed respirator complying with an approved standard if a risk assessment indicates this is necessary. Respirator selection must be based on known or anticipated exposure levels, the hazards of the product and the safe working limits of the selected respirator.

Hands

Chemical-resistant, impervious gloves complying with an approved standard should be worn at all times when handling chemical products if a risk assessment indicates this is necessary. Considering the parameters specified by the glove manufacturer, check during use that the gloves are still retaining their protective properties. It should be noted that the time to breakthrough for any glove material may be different for different glove manufacturers. In the case of mixtures, consisting of several substances, the protection time of the gloves cannot be accurately estimated.

Eyes

Safety eyewear complying with an approved standard should be used when a risk assessment indicates this is necessary to avoid exposure to liquid splashes, mists or dusts. If contact is possible, the following protection should be worn, unless the assessment indicates a higher degree of protection: chemical splash goggles.

Skin

Personal protective equipment for the body should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product.

Environmental exposure controls

Emissions from ventilation or work process equipment should be checked to ensure they comply with the requirements of environmental protection legislation. In some cases, fume scrubbers, filters or engineering modifications to the process equipment will be necessary to reduce emissions to acceptable levels.

Other protection

Not available.

Personal protective equipment (Pictograms)

Not available.



Section 9. Physical and chemical properties

Physical state	Liquid.
Flash point	[Product does not sustain combustion.]
Burning time	Not applicable.
Burning rate	Not applicable.
Color	Colorless.
Volatility	0% (v/v)
SADT	Not available.
Solubility	Easily soluble in the following materials: cold water and hot water.

Section 10. Stability and reactivity

Chemical stability	The product is stable.
Incompatible materials	No specific data.
Possibility of hazardous reactions	Under normal conditions of storage and use, hazardous reactions will not occur.

Section 11. Toxicological information

Acute toxicity

Product/ingredient name	Result	Species	Dose	Exposure
1,4-dihydroxybenzene	LD50 Oral	Rat	302 mg/kg	-
Conclusion/Summary	Not available.			

Chronic toxicity

Not available.

Conclusion/Summary Not available.

Irritation/Corrosion

Not available.

Conclusion/Summary Not available.

Sensitizer

Not available.

Conclusion/Summary Not available.

Carcinogenicity

Not available.

Conclusion/Summary Not available.

Classification

Product/ingredient name	ACGIH	IARC	EPA	NIOSH	NTP	OSHA
1,4-dihydroxybenzene	A3	3	-	-	-	-

Mutagenicity

Not available.

Conclusion/Summary Not available.

Teratogenicity

Not available.

Conclusion/Summary Not available.

Reproductive toxicity

Not available.

Conclusion/Summary Not available.

Synergistic products Not available.



Section 12. Ecological information

Environmental effects No known significant effects or critical hazards.

Aquatic ecotoxicity

Product/ingredient name	Result	Species	Exposure
1,4-dihydroxybenzene	Acute LC50 162 µg/l Fresh water Acute LC50 44 µg/l Fresh water	Daphnia - Daphnia pulicaria Fish - Oncorhynchus mykiss	48 hours 96 hours

Conclusion/Summary Not available.

Persistence/degradability

Partition coefficient: n-octanol/water Not available.

Bioconcentration factor Not available.

Other adverse effects No known significant effects or critical hazards.

Section 13. Disposal considerations

Waste disposal The generation of waste should be avoided or minimized wherever possible. Disposal of this product, solutions and any by-products should at all times comply with the requirements of environmental protection and waste disposal legislation and any regional local authority requirements. Dispose of surplus and non-recyclable products via a licensed waste disposal contractor. Waste should not be disposed of untreated to the sewer unless fully compliant with the requirements of all authorities with jurisdiction. Waste packaging should be recycled. Incineration or landfill should only be considered when recycling is not feasible. This material and its container must be disposed of in a safe way. Care should be taken when handling emptied containers that have not been cleaned or rinsed out. Empty containers or liners may retain some product residues. Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers.

RCRA classification Not available.

Disposal should be in accordance with applicable regional, national and local laws and regulations.

Refer to Section 7: HANDLING AND STORAGE and Section 8: EXPOSURE CONTROLS/PERSONAL PROTECTION for additional handling information and protection of employees.

Section 14. Transport information

Regulatory information	UN number	Proper shipping name	Classes	PG*	Label	Additional information
DOT Classification	UN3082	Environmentally hazardous substance, liquid, n.o.s. (1,4-dihydroxybenzene, solution). Marine pollutant (1, 4-dihydroxybenzene) RQ (1, 4-dihydroxybenzene)	9	III	 	Reportable quantity 2857.1 lbs / 1297.1 kg Package sizes shipped in quantities less than the product reportable quantity are not subject to the RQ (reportable quantity) transportation requirements.
TDG Classification	UN3082	Environmentally hazardous substance, liquid, n.o.s. (1,4-dihydroxybenzene, solution). Marine pollutant (sodium metabisulphite)	9	III	 	-
Mexico Classification	UN3082	Environmentally hazardous substance, liquid, n.o.s. (1,4-dihydroxybenzene, solution). Marine pollutant (1, 4-dihydroxybenzene)	9	III	 	-
ADR/RID Class	UN3082	Environmentally hazardous substance, liquid, n.o.s. (1,4-dihydroxybenzene, solution)	9	III	 	Tunnel code (E)



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IMDG Class	UN3082	Environmentally hazardous substance, liquid, n.o.s. (1,4-dihydroxybenzene, solution). Marine pollutant (1, 4-dihydroxybenzene)	9	III	-	 
IATA-DGR Class	UN3082	Environmentally hazardous substance, liquid, n.o.s. (1,4-dihydroxybenzene, solution)	9	III	-	 

PG* : Packing group

Section 15. Regulatory information

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

WHMIS (Canada)
 Class D-1B: Material causing immediate and serious toxic effects (Toxic).
 Class D-2B: Material causing other toxic effects (Toxic).
 Class E: Corrosive material

Canadian lists

Canadian NPRI The following components are listed: Hydroquinone (and its salts)

CEPA Toxic substances The following components are listed: 1,4-Benzenediol

Canada inventory Not determined.

International regulations

International lists

Australia inventory (AICS): All components are listed or exempted.
China inventory (IECSC): All components are listed or exempted.
Japan inventory: All components are listed or exempted.
Korea inventory: All components are listed or exempted.
Malaysia Inventory (EHS Register): Not determined.
New Zealand Inventory of Chemicals (NZIoC): All components are listed or exempted.
Philippines inventory (PICCS): All components are listed or exempted.
Taiwan inventory (CSNN): Not determined.

Chemical Weapons Convention List Schedule I Chemicals Not listed

Chemical Weapons Convention List Schedule II Chemicals Not listed

Chemical Weapons Convention List Schedule III Chemicals Not listed

Section 16. Other information

The customer is responsible for determining the PPE code for this material.



Indicates information that has changed from previously issued version.

History

Date of printing	07 May 2014	Date of previous issue	No previous validation
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Notice to reader

To the best of our knowledge, the information contained herein is accurate. However, neither the above-named supplier, nor any of its subsidiaries, assumes any liability whatsoever for the accuracy or completeness of the information contained herein. Final determination of suitability of any material is the sole responsibility of the user. All materials may present unknown hazards and should be used with caution. Although certain hazards are described herein, we cannot guarantee that these are the only hazards that exist.



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