(2012 OSHA Hazard Communication Standard (29 CFR 1910.1200))

SAFETY DATA SHEET

Factor VIII Chromogenic Assay

Section 1. Identification

Product identifier : Factor VIII Chromogenic Assay

Product code : B4238-40, 10873840

Product type : Liquid.

Relevant identified uses of the substance or mixture and uses advised against

Not applicable.

Manufactured/supplied : Sysmex Americas
577 Aptakisic RD
Lincolnshire, IL 60069
Company Phone Number: (224) 543-9500

Emergency telephone number ChemTel Inc.
1-800-255-3924 (North America)
1-813-248-0585 (International)

Section 2. Hazards identification

OSHA/HCS status :

Factor X Reagent	While this material is not considered hazardous by the OSHA Hazard Communication Standard (29 CFR 1910.1200), this SDS contains valuable information critical to the safe handling and proper use of the product. This SDS should be retained and available for employees and other users of this product.
Factor IX Reagent	This material is considered hazardous by the OSHA Hazard Communication Standard (29 CFR 1910.1200).
Substrate Reagent	While this material is not considered hazardous by the OSHA Hazard Communication Standard (29 CFR 1910.1200), this SDS contains valuable information critical to the safe handling and proper use of the product. This SDS should be retained and available for employees and other users of this product.
Substrate Buffer	While this material is not considered hazardous by the OSHA Hazard Communication Standard (29 CFR 1910.1200), this SDS contains valuable information critical to the safe handling and proper use of the product. This SDS should be retained and available for employees and other users of this product.

Classification of the substance or mixture : **Factor IX Reagent**

EYE IRRITATION	Category 2A

Additional information : Not available.

Sodium azide may react with lead or copper plumbing to form highly explosive metal azides.

GHS label elements

Section 2. Hazards identification

Hazard pictograms :

Signal word	: Factor X Reagent	No signal word.
	Factor IX Reagent	Warning
	Substrate Reagent	No signal word.
	Substrate Buffer	No signal word.
Hazard statements	: Factor X Reagent	No known significant effects or critical hazards.
	Factor IX Reagent	H319 - Causes serious eye irritation.
	Substrate Reagent	No known significant effects or critical hazards.
	Substrate Buffer	No known significant effects or critical hazards.

Precautionary statements

Prevention	: Factor X Reagent	Not applicable.
	Factor IX Reagent	P280 - Wear eye or face protection. P264 - Wash thoroughly after handling.
	Substrate Reagent	Not applicable.
	Substrate Buffer	Not applicable.
Response	: Factor X Reagent	Not applicable.
	Factor IX Reagent	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 or attention.
	Substrate Reagent	Not applicable.
	Substrate Buffer	Not applicable.
Storage	: Factor X Reagent	Not applicable.
	Factor IX Reagent	Not applicable.
	Substrate Reagent	Not applicable.
	Substrate Buffer	Not applicable.
Disposal	: Factor X Reagent	Not applicable.
	Factor IX Reagent	Not applicable.
	Substrate Reagent	Not applicable.
	Substrate Buffer	Not applicable.
Supplemental label elements	: Factor X Reagent	None known.
	Factor IX Reagent	None known.
	Substrate Reagent	None known.
	Substrate Buffer	None known.
Hazards not otherwise classified	: Factor X Reagent	None known.
	Factor IX Reagent	None known.
	Substrate Reagent	None known.
	Substrate Buffer	None known.

Section 3. Composition/information on ingredients

Substance/mixture	: Factor X Reagent	Mixture
	Factor IX Reagent	Mixture
	Substrate Reagent	Mixture
	Substrate Buffer	Mixture

Ingredient name	%	CAS number
Factor X Reagent		
sodium azide	≤0.1	26628-22-8
Factor IX Reagent		
calcium chloride	≥10 - ≤25	10043-52-4

Section 3. Composition/information on ingredients

sodium azide	≤0.1	26628-22-8
Substrate Buffer		
sodium azide	≤0.1	26628-22-8

Any concentration shown as a range is to protect confidentiality or is due to batch variation.

Occupational exposure limits, if available, are listed in Section 8.

Section 4. First aid measures

Description of necessary first aid measures

Eye contact : Factor X Reagent: Immediately flush eyes with plenty of water, occasionally lifting the upper and lower eyelids. Check for and remove any contact lenses. Get medical attention if irritation occurs.

Factor IX Reagent: Immediately flush eyes with plenty of water, occasionally lifting the upper and lower eyelids. Check for and remove any contact lenses. Continue to rinse for at least 10 minutes. Get medical attention.

Substrate Reagent: Immediately flush eyes with plenty of water, occasionally lifting the upper and lower eyelids. Check for and remove any contact lenses. Get medical attention if irritation occurs.

Substrate Buffer: Immediately flush eyes with plenty of water, occasionally lifting the upper and lower eyelids. Check for and remove any contact lenses. Get medical attention if irritation occurs.

Inhalation : Factor X Reagent: Remove victim to fresh air and keep at rest in a position comfortable for breathing. Get medical attention if symptoms occur. In case of inhalation of decomposition products in a fire, symptoms may be delayed. The exposed person may need to be kept under medical surveillance for 48 hours.

Factor IX Reagent: Remove victim to fresh air and keep at rest in a position comfortable for breathing. If not breathing, if breathing is irregular or if respiratory arrest occurs, provide artificial respiration or oxygen by trained personnel. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation. Get medical attention if adverse health effects persist or are severe. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband. In case of inhalation of decomposition products in a fire, symptoms may be delayed. The exposed person may need to be kept under medical surveillance for 48 hours.

Substrate Reagent: Remove victim to fresh air and keep at rest in a position comfortable for breathing. Get medical attention if symptoms occur. In case of inhalation of decomposition products in a fire, symptoms may be

Section 4. First aid measures

			delayed. The exposed person may need to be kept under medical surveillance for 48 hours.
		Substrate Buffer	Remove victim to fresh air and keep at rest in a position comfortable for breathing. Get medical attention if symptoms occur.
Skin contact	:	Factor X Reagent	Flush contaminated skin with plenty of water. Remove contaminated clothing and shoes. Get medical attention if symptoms occur.
		Factor IX Reagent	Flush contaminated skin with plenty of water. Remove contaminated clothing and shoes. Get medical attention if symptoms occur. Wash clothing before reuse. Clean shoes thoroughly before reuse.
		Substrate Reagent	Flush contaminated skin with plenty of water. Remove contaminated clothing and shoes. Get medical attention if symptoms occur.
		Substrate Buffer	Flush contaminated skin with plenty of water. Remove contaminated clothing and shoes. Get medical attention if symptoms occur.
Ingestion	:	Factor X Reagent	Wash out mouth with water. If material has been swallowed and the exposed person is conscious, give small quantities of water to drink. Do not induce vomiting unless directed to do so by medical personnel. Get medical attention if symptoms occur.
		Factor IX Reagent	Wash out mouth with water. Remove dentures if any. If material has been swallowed and the exposed person is conscious, give small quantities of water to drink. Stop if the exposed person feels sick as vomiting may be dangerous. Do not induce vomiting unless directed to do so by medical personnel. If vomiting occurs, the head should be kept low so that vomit does not enter the lungs. Get medical attention if adverse health effects persist or are severe. Never give anything by mouth to an unconscious person. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband.
		Substrate Reagent	Wash out mouth with water. If material has been swallowed and the exposed person is conscious, give small quantities of water to drink. Do not induce vomiting unless directed to do so by medical personnel. Get medical attention if symptoms occur.
		Substrate Buffer	Wash out mouth with water. If material has been swallowed and the exposed person is conscious, give small quantities of water to drink. Do not induce vomiting unless directed to do so by medical personnel. Get medical attention if symptoms occur.

Most important symptoms/effects, acute and delayed

Potential acute health effects

Section 4. First aid measures

Eye contact	:	Factor X Reagent	No known significant effects or critical hazards.
		Factor IX Reagent	Causes serious eye irritation.
		Substrate Reagent	No known significant effects or critical hazards.
		Substrate Buffer	No known significant effects or critical hazards.
Inhalation	:	Factor X Reagent	No known significant effects or critical hazards.
		Factor IX Reagent	No known significant effects or critical hazards.
		Substrate Reagent	No known significant effects or critical hazards.
		Substrate Buffer	No known significant effects or critical hazards.
Skin contact	:	Factor X Reagent	No known significant effects or critical hazards.
		Factor IX Reagent	No known significant effects or critical hazards.
		Substrate Reagent	No known significant effects or critical hazards.
		Substrate Buffer	No known significant effects or critical hazards.
Ingestion	:	Factor X Reagent	No known significant effects or critical hazards.
		Factor IX Reagent	No known significant effects or critical hazards.
		Substrate Reagent	No known significant effects or critical hazards.
		Substrate Buffer	No known significant effects or critical hazards.

Over-exposure signs/symptoms

Eye contact	:	Factor X Reagent	No specific data.
		Factor IX Reagent	Adverse symptoms may include the following: pain or irritation watering redness
		Substrate Reagent	No specific data.
		Substrate Buffer	No specific data.
Inhalation	:	Factor X Reagent	No specific data.
		Factor IX Reagent	No specific data.
		Substrate Reagent	No specific data.
		Substrate Buffer	No specific data.
Skin contact	:	Factor X Reagent	No specific data.
		Factor IX Reagent	No specific data.
		Substrate Reagent	No specific data.
		Substrate Buffer	No specific data.
Ingestion	:	Factor X Reagent	No specific data.
		Factor IX Reagent	No specific data.
		Substrate Reagent	No specific data.
		Substrate Buffer	No specific data.

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

Notes to physician	:	In case of inhalation of decomposition products in a fire, symptoms may be delayed. The exposed person may need to be kept under medical surveillance for 48 hours.
Specific treatments	:	No specific treatment.
Protection of first-aiders	:	No action shall be taken involving any personal risk or without suitable training.

See toxicological information (Section 11)

Section 5. Fire-fighting measures

Extinguishing media

Suitable extinguishing media : In case of fire, use water spray (fog), foam or dry chemical.

Unsuitable extinguishing media : None known.

Specific hazards arising from the chemical : In a fire or if heated, a pressure increase will occur and the container may burst.

Hazardous thermal decomposition products : Decomposition products may include the following materials:
carbon dioxide
carbon monoxide
nitrogen oxides
halogenated compounds
metal oxide/oxides

Special protective actions for fire-fighters : 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, protective equipment and emergency procedures

For non-emergency personnel : 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. Put on appropriate personal protective equipment.

For emergency responders : If specialized clothing is required to deal with the spillage, take note of any information in Section 8 on suitable and unsuitable materials. See also the information in "For non-emergency personnel".

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 and materials for containment and cleaning up

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.

Large spill : Stop leak if without risk. Move containers from spill area. 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. Note: see Section 1 for emergency contact information and Section 13 for waste disposal.

Section 7. Handling and storage

Precautions for safe handling

Protective measures : Put on appropriate personal protective equipment (see Section 8).

Advice on general occupational hygiene : 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. See also Section 8 for additional information on hygiene measures.

Section 7. Handling and storage

Conditions for safe storage, including any incompatibilities : 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. See Section 10 for incompatible materials before handling or use.

Section 8. Exposure controls/personal protection

Control parameters

Occupational exposure limits

Ingredient name	Exposure limits
Factor X Reagent sodium azide	**ACGIH TLV (United States, 1/2021).** C: 0.29 mg/m³, (as Sodium azide) C: 0.11 ppm, (as Hydrazoic acid vapor) **OSHA PEL 1989 (United States, 3/1989).** **Absorbed through skin.** CEIL: 0.1 ppm, (as HN3) CEIL: 0.3 mg/m³, (as NaN3) **NIOSH REL (United States, 10/2020).** **Absorbed through skin.** CEIL: 0.1 ppm, (as HN3) CEIL: 0.3 mg/m³, (NAN3)
Factor IX Reagent sodium azide	**ACGIH TLV (United States, 1/2021).** C: 0.29 mg/m³, (as Sodium azide) C: 0.11 ppm, (as Hydrazoic acid vapor) **OSHA PEL 1989 (United States, 3/1989).** **Absorbed through skin.** CEIL: 0.1 ppm, (as HN3) CEIL: 0.3 mg/m³, (as NaN3) **NIOSH REL (United States, 10/2020).** **Absorbed through skin.** CEIL: 0.1 ppm, (as HN3) CEIL: 0.3 mg/m³, (NAN3)
Substrate Buffer sodium azide	**ACGIH TLV (United States, 1/2021).** C: 0.29 mg/m³, (as Sodium azide) C: 0.11 ppm, (as Hydrazoic acid vapor) **OSHA PEL 1989 (United States, 3/1989).** **Absorbed through skin.** CEIL: 0.1 ppm, (as HN3) CEIL: 0.3 mg/m³, (as NaN3) **NIOSH REL (United States, 10/2020).** **Absorbed through skin.** CEIL: 0.1 ppm, (as HN3) CEIL: 0.3 mg/m³, (NAN3)

Appropriate engineering controls : Good general ventilation should be sufficient to control worker exposure to airborne contaminants.

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.

Individual protection measures

Section 8. Exposure controls/personal protection

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. Wash contaminated clothing before reusing. Ensure that eyewash stations and safety showers are close to the workstation location.

Eye/face protection : 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, gases or dusts. If contact is possible, the following protection should be worn, unless the assessment indicates a higher degree of protection: safety glasses with side-shields.

Skin protection

Hand protection : 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.

Body protection : 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.

Other skin protection : Appropriate footwear and any additional skin protection measures should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product.

Respiratory protection : Based on the hazard and potential for exposure, select a respirator that meets the appropriate standard or certification. Respirators must be used according to a respiratory protection program to ensure proper fitting, training, and other important aspects of use.

Section 9. Physical and chemical properties

Physical state :	Factor X Reagent	Solid.
	Factor IX Reagent	Solid.
	Substrate Reagent	Solid.
	Substrate Buffer	Liquid.
Color :	Factor X Reagent	White.
	Factor IX Reagent	White.
	Substrate Reagent	White.
	Substrate Buffer	Colorless.
Odor :	Factor X Reagent	Odorless.
	Factor IX Reagent	Odorless.
	Substrate Reagent	Odorless.
	Substrate Buffer	Odorless.
pH :	Factor X Reagent	Not applicable.
	Factor IX Reagent	Not applicable.
	Substrate Reagent	Not applicable.
	Substrate Buffer	8
Flash point :	Factor X Reagent	[Product does not sustain combustion.]
	Factor IX Reagent	[Product does not sustain combustion.]
	Substrate Reagent	[Product does not sustain combustion.]
	Substrate Buffer	[Product does not sustain combustion.]
Flammability (solid, gas) :	Factor X Reagent	Not relevant/applicable due to nature of the product.
	Factor IX Reagent	Not relevant/applicable due to nature of the product.
	Substrate Reagent	Not relevant/applicable due to nature of the product.
	Substrate Buffer	Not relevant/applicable due to nature of the product.
Relative density :	Factor X Reagent	Not available.
	Factor IX Reagent	Not available.
	Substrate Reagent	Not available.
	Substrate Buffer	1

Solubility(ies) :

Not available.

Section 9. Physical and chemical properties

Solubility in water	:	Factor X Reagent	Not available.
		Factor IX Reagent	Not available.
		Substrate Reagent	Not available.
		Substrate Buffer	Not available.
Partition coefficient: n-octanol/water	:	Factor X Reagent	Not relevant/applicable due to nature of the product.
		Factor IX Reagent	Not relevant/applicable due to nature of the product.
		Substrate Reagent	Not relevant/applicable due to nature of the product.
		Substrate Buffer	Not relevant/applicable due to nature of the product.
Auto-ignition temperature	:	Factor X Reagent	Not relevant/applicable due to nature of the product.
		Factor IX Reagent	Not relevant/applicable due to nature of the product.
		Substrate Reagent	Not relevant/applicable due to nature of the product.
		Substrate Buffer	Not available.
Viscosity	:	Factor X Reagent	Not relevant/applicable due to nature of the product.
		Factor IX Reagent	Not relevant/applicable due to nature of the product.
		Substrate Reagent	Not relevant/applicable due to nature of the product.
		Substrate Buffer	Not relevant/applicable due to nature of the product.

Aerosol product

Type of aerosol	:	Factor X Reagent	Not applicable.
		Factor IX Reagent	Not applicable.
		Substrate Reagent	Not applicable.
		Substrate Buffer	Not applicable.

Section 10. Stability and reactivity

Reactivity	:	Factor X Reagent	No specific test data related to reactivity available for this product or its ingredients.
		Factor IX Reagent	No specific test data related to reactivity available for this product or its ingredients.
		Substrate Reagent	No specific test data related to reactivity available for this product or its ingredients.
		Substrate Buffer	No specific test data related to reactivity available for this product or its ingredients.
Chemical stability	:	Factor X Reagent	The product is stable.
		Factor IX Reagent	The product is stable.
		Substrate Reagent	The product is stable.
		Substrate Buffer	The product is stable.
Possibility of hazardous reactions	:	Under normal conditions of storage and use, hazardous reactions will not occur.	
Conditions to avoid	:	Factor X Reagent	No specific data.
		Factor IX Reagent	No specific data.
		Substrate Reagent	No specific data.
		Substrate Buffer	No specific data.
Incompatible materials	:	Factor X Reagent	No specific data.
		Factor IX Reagent	No specific data.
		Substrate Reagent	No specific data.
		Substrate Buffer	No specific data.

Section 10. Stability and reactivity

Hazardous decomposition products	:	Factor X Reagent	Under normal conditions of storage and use, hazardous decomposition products should not be produced.
		Factor IX Reagent	Under normal conditions of storage and use, hazardous decomposition products should not be produced.
		Substrate Reagent	Under normal conditions of storage and use, hazardous decomposition products should not be produced.
		Substrate Buffer	Under normal conditions of storage and use, hazardous decomposition products should not be produced.

Section 11. Toxicological information

Information on toxicological effects

Acute toxicity

Product/ingredient name	Result	Species	Dose	Exposure
Factor X Reagent				
sodium azide	LD50 Dermal	Rabbit	20 mg/kg	-
	LD50 Dermal	Rat	50 mg/kg	-
	LD50 Oral	Rat	27 mg/kg	-
Factor IX Reagent				
calcium chloride	LD50 Oral	Rat	1 g/kg	-
sodium azide	LD50 Dermal	Rabbit	20 mg/kg	-
	LD50 Dermal	Rat	50 mg/kg	-
	LD50 Oral	Rat	27 mg/kg	-
Substrate Buffer				
sodium azide	LD50 Dermal	Rabbit	20 mg/kg	-
	LD50 Dermal	Rat	50 mg/kg	-
	LD50 Oral	Rat	27 mg/kg	-

Conclusion/Summary	:	Factor X Reagent	Not available.
		Factor IX Reagent	Not available.
		Substrate Reagent	Not available.
		Substrate Buffer	Not available.

Irritation/Corrosion

Not available.

Conclusion/Summary

Skin	:	Factor X Reagent	Not available.
		Factor IX Reagent	Not available.
		Substrate Reagent	Not available.
		Substrate Buffer	Not available.
Eyes	:	Factor X Reagent	Not available.
		Factor IX Reagent	Not available.
		Substrate Reagent	Not available.
		Substrate Buffer	Not available.
Respiratory	:	Factor X Reagent	Not available.
		Factor IX Reagent	Not available.
		Substrate Reagent	Not available.
		Substrate Buffer	Not available.

Sensitization

Not available.

Conclusion/Summary

Skin	:	Factor X Reagent	Not available.
		Factor IX Reagent	Not available.
		Substrate Reagent	Not available.
		Substrate Buffer	Not available.

Section 11. Toxicological information

Respiratory	:	Factor X Reagent	Not available.
		Factor IX Reagent	Not available.
		Substrate Reagent	Not available.
		Substrate Buffer	Not available.

Mutagenicity

Not available.

Conclusion/Summary	:	Factor X Reagent	Not available.
		Factor IX Reagent	Not available.
		Substrate Reagent	Not available.
		Substrate Buffer	Not available.

Carcinogenicity

Not available.

Conclusion/Summary	:	Factor X Reagent	Not available.
		Factor IX Reagent	Not available.
		Substrate Reagent	Not available.
		Substrate Buffer	Not available.

Reproductive toxicity

Not available.

Conclusion/Summary	:	Factor X Reagent	Not available.
		Factor IX Reagent	Not available.
		Substrate Reagent	Not available.
		Substrate Buffer	Not available.

Teratogenicity

Not available.

Conclusion/Summary	:	Factor X Reagent	Not available.
		Factor IX Reagent	Not available.
		Substrate Reagent	Not available.
		Substrate Buffer	Not available.

Specific target organ toxicity (single exposure)

Not available.

Specific target organ toxicity (repeated exposure)

Not available.

Aspiration hazard

Not available.

Information on the likely routes of exposure	:	Factor X Reagent	Not available.
		Factor IX Reagent	Not available.
		Substrate Reagent	Not available.
		Substrate Buffer	Not available.

Potential acute health effects

Eye contact	:	Factor X Reagent	No known significant effects or critical hazards.
		Factor IX Reagent	Causes serious eye irritation.
		Substrate Reagent	No known significant effects or critical hazards.
		Substrate Buffer	No known significant effects or critical hazards.
Inhalation	:	Factor X Reagent	No known significant effects or critical hazards.
		Factor IX Reagent	No known significant effects or critical hazards.
		Substrate Reagent	No known significant effects or critical hazards.
		Substrate Buffer	No known significant effects or critical hazards.

Section 11. Toxicological information

Skin contact	:	Factor X Reagent	No known significant effects or critical hazards.
		Factor IX Reagent	No known significant effects or critical hazards.
		Substrate Reagent	No known significant effects or critical hazards.
		Substrate Buffer	No known significant effects or critical hazards.
Ingestion	:	Factor X Reagent	No known significant effects or critical hazards.
		Factor IX Reagent	No known significant effects or critical hazards.
		Substrate Reagent	No known significant effects or critical hazards.
		Substrate Buffer	No known significant effects or critical hazards.

Symptoms related to the physical, chemical and toxicological characteristics

Eye contact	:	Factor X Reagent	No specific data.
		Factor IX Reagent	Adverse symptoms may include the following: pain or irritation watering redness
		Substrate Reagent	No specific data.
		Substrate Buffer	No specific data.
Inhalation	:	Factor X Reagent	No specific data.
		Factor IX Reagent	No specific data.
		Substrate Reagent	No specific data.
		Substrate Buffer	No specific data.
Skin contact	:	Factor X Reagent	No specific data.
		Factor IX Reagent	No specific data.
		Substrate Reagent	No specific data.
		Substrate Buffer	No specific data.
Ingestion	:	Factor X Reagent	No specific data.
		Factor IX Reagent	No specific data.
		Substrate Reagent	No specific data.
		Substrate Buffer	No specific data.

Delayed and immediate effects and also chronic effects from short and long term exposure

Short term exposure

Potential immediate effects	:	Factor X Reagent	Not available.
		Factor IX Reagent	Not available.
		Substrate Reagent	Not available.
		Substrate Buffer	Not available.
Potential delayed effects	:	Factor X Reagent	Not available.
		Factor IX Reagent	Not available.
		Substrate Reagent	Not available.
		Substrate Buffer	Not available.

Long term exposure

Potential immediate effects	:	Factor X Reagent	Not available.
		Factor IX Reagent	Not available.
		Substrate Reagent	Not available.
		Substrate Buffer	Not available.
Potential delayed effects	:	Factor X Reagent	Not available.
		Factor IX Reagent	Not available.
		Substrate Reagent	Not available.
		Substrate Buffer	Not available.

Potential chronic health effects

Not available.

Section 11. Toxicological information

Conclusion/Summary	:	Not available.	Factor X Reagent
		Not available.	Factor IX Reagent
		Not available.	Substrate Reagent
		Not available.	Substrate Buffer
General	:	No known significant effects or critical hazards.	
Carcinogenicity	:	No known significant effects or critical hazards.	
Mutagenicity	:	No known significant effects or critical hazards.	
Reproductive toxicity	:	No known significant effects or critical hazards.	

Numerical measures of toxicity

Acute toxicity estimates

Product/ingredient name	Oral (mg/kg)	Dermal (mg/kg)	Inhalation (gases) (ppm)	Inhalation (vapors) (mg/l)	Inhalation (dusts and mists) (mg/l)
Factor X Reagent					
sodium azide	27	20	N/A	N/A	N/A
Factor IX Reagent					
sodium azide	27	20	N/A	N/A	N/A
Substrate Buffer					
sodium azide	27	20	N/A	N/A	N/A

Interactive effects	:	Factor X Reagent	Not available.
		Factor IX Reagent	Not available.
		Substrate Reagent	Not available.
		Substrate Buffer	Not available.
Other information	:	Factor X Reagent	Not available.
		Factor IX Reagent	Not available.
		Substrate Reagent	Not available.
		Substrate Buffer	Not available.

Section 12. Ecological information

Toxicity

Product/ingredient name	Result	Species	Exposure
Factor X Reagent			
sodium azide	Acute EC50 9200 µg/l Marine water	Algae - Macrocystis pyrifera	96 hours
	Acute EC50 6.4 mg/l Fresh water	Crustaceans - Simocephalus serrulatus - Larvae	48 hours
	Acute EC50 4.2 mg/l Fresh water	Daphnia - Daphnia pulex - Larvae	48 hours
	Acute LC50 0.68 mg/l Fresh water	Fish - Lepomis macrochirus	96 hours
	Chronic NOEC 5600 µg/l Marine water	Algae - Macrocystis pyrifera	96 hours
Factor IX Reagent			
calcium chloride	Acute EC50 3130000 µg/l Fresh water	Algae - Navicula seminulum	96 hours
	Acute EC50 52000 µg/l Fresh water	Daphnia - Daphnia magna	48 hours
	Acute LC50 270 mg/l Marine water	Crustaceans - Americamysis bahia	48 hours
	Acute LC50 2110 mg/l Fresh water	Fish - Pimephales promelas	96 hours
sodium azide	Acute EC50 9200 µg/l Marine water	Algae - Macrocystis pyrifera	96 hours
	Acute EC50 6.4 mg/l Fresh water	Crustaceans - Simocephalus serrulatus - Larvae	48 hours
	Acute EC50 4.2 mg/l Fresh water	Daphnia - Daphnia pulex - Larvae	48 hours
	Acute LC50 0.68 mg/l Fresh water	Fish - Lepomis macrochirus	96 hours
	Chronic NOEC 5600 µg/l Marine water	Algae - Macrocystis pyrifera	96 hours
Substrate Buffer			
sodium azide	Acute EC50 9200 µg/l Marine water	Algae - Macrocystis pyrifera	96 hours
	Acute EC50 6.4 mg/l Fresh water	Crustaceans - Simocephalus	48 hours

Section 12. Ecological information

		serrulatus - Larvae	
	Acute EC50 4.2 mg/l Fresh water	Daphnia - Daphnia pulex - Larvae	48 hours
	Acute LC50 0.68 mg/l Fresh water	Fish - Lepomis macrochirus	96 hours
	Chronic NOEC 5600 µg/l Marine water	Algae - Macrocystis pyrifera	96 hours

Conclusion/Summary :

Factor X Reagent	Not available.
Factor IX Reagent	Not available.
Substrate Reagent	Not available.
Substrate Buffer	Not available.

Persistence and degradability

Conclusion/Summary :

Factor X Reagent	Not available.
Factor IX Reagent	Not available.
Substrate Reagent	Not available.
Substrate Buffer	Not available.

Bioaccumulative potential

Not available.

Mobility in soil

Soil/water partition coefficient (K_{OC}) :

Factor X Reagent	Not available.
Factor IX Reagent	Not available.
Substrate Reagent	Not available.
Substrate Buffer	Not available.

Mobility :

Factor X Reagent	Not available.
Factor IX Reagent	Not available.
Substrate Reagent	Not available.
Substrate Buffer	Not available.

Other adverse effects : No known significant effects or critical hazards.

Section 13. Disposal considerations

Disposal methods : 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. Empty containers or liners may retain some product residues. Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers.

Sodium azide may react with lead or copper plumbing to form highly explosive metal azides.

Section 14. Transport information

DOT Classification

UN number	Factor X Reagent	Not regulated.
	Factor IX Reagent	Not regulated.
	Substrate Reagent	Not regulated.
	Substrate Buffer	Not regulated.
UN proper shipping name	Factor X Reagent	-
	Factor IX Reagent	-
	Substrate Reagent	-
	Substrate Buffer	-

Section 14. Transport information

Transport hazard class(es)	Factor X Reagent	-
	Factor IX Reagent	-
	Substrate Reagent	-
	Substrate Buffer	-
Packing group	Factor X Reagent	-
	Factor IX Reagent	-
	Substrate Reagent	-
	Substrate Buffer	-
Environmental hazards	Factor X Reagent	No.
	Factor IX Reagent	No.
	Substrate Reagent	No.
	Substrate Buffer	No.
Additional information	Factor X Reagent	-
	Factor IX Reagent	-
	Substrate Reagent	-
	Substrate Buffer	-

TDG Classification

UN number	Factor X Reagent	Not regulated.
	Factor IX Reagent	Not regulated.
	Substrate Reagent	Not regulated.
	Substrate Buffer	Not regulated.
UN proper shipping name	Factor X Reagent	-
	Factor IX Reagent	-
	Substrate Reagent	-
	Substrate Buffer	-
Transport hazard class(es)	Factor X Reagent	-
	Factor IX Reagent	-
	Substrate Reagent	-
	Substrate Buffer	-
Packing group	Factor X Reagent	-
	Factor IX Reagent	-
	Substrate Reagent	-
	Substrate Buffer	-
Environmental hazards	Factor X Reagent	No.
	Factor IX Reagent	No.
	Substrate Reagent	No.
	Substrate Buffer	No.
Additional information	Factor X Reagent	-
	Factor IX Reagent	-
	Substrate Reagent	-
	Substrate Buffer	-

ADR/RID

UN number	Factor X Reagent	Not regulated.
	Factor IX Reagent	Not regulated.
	Substrate Reagent	Not regulated.
	Substrate Buffer	Not regulated.
UN proper shipping name	Factor X Reagent	-
	Factor IX Reagent	-
	Substrate Reagent	-
	Substrate Buffer	-

Section 14. Transport information

Transport hazard class(es)	Factor X Reagent	-
	Factor IX Reagent	-
	Substrate Reagent	-
	Substrate Buffer	-
Packing group	Factor X Reagent	-
	Factor IX Reagent	-
	Substrate Reagent	-
	Substrate Buffer	-
Environmental hazards	Factor X Reagent	No.
	Factor IX Reagent	No.
	Substrate Reagent	No.
	Substrate Buffer	No.
Additional information	Factor X Reagent	-
	Factor IX Reagent	-
	Substrate Reagent	-
	Substrate Buffer	-

IMDG

UN number	Factor X Reagent	Not regulated.
	Factor IX Reagent	Not regulated.
	Substrate Reagent	Not regulated.
	Substrate Buffer	Not regulated.
UN proper shipping name	Factor X Reagent	-
	Factor IX Reagent	-
	Substrate Reagent	-
	Substrate Buffer	-
Transport hazard class(es)	Factor X Reagent	-
	Factor IX Reagent	-
	Substrate Reagent	-
	Substrate Buffer	-
Packing group	Factor X Reagent	-
	Factor IX Reagent	-
	Substrate Reagent	-
	Substrate Buffer	-
Environmental hazards	Factor X Reagent	No.
	Factor IX Reagent	No.
	Substrate Reagent	No.
	Substrate Buffer	No.
Additional information	Factor X Reagent	-
	Factor IX Reagent	-
	Substrate Reagent	-
	Substrate Buffer	-

IATA

UN number	Factor X Reagent	Not regulated.
	Factor IX Reagent	Not regulated.
	Substrate Reagent	Not regulated.
	Substrate Buffer	Not regulated.
UN proper shipping name	Factor X Reagent	-
	Factor IX Reagent	-
	Substrate Reagent	-
	Substrate Buffer	-

Section 14. Transport information

Transport hazard class(es)	Factor X Reagent	-
	Factor IX Reagent	-
	Substrate Reagent	-
	Substrate Buffer	-
Packing group	Factor X Reagent	-
	Factor IX Reagent	-
	Substrate Reagent	-
	Substrate Buffer	-
Environmental hazards	Factor X Reagent	No.
	Factor IX Reagent	No.
	Substrate Reagent	No.
	Substrate Buffer	No.
Additional information	Factor X Reagent	-
	Factor IX Reagent	-
	Substrate Reagent	-
	Substrate Buffer	-

Special precautions for user :

Factor X Reagent	**Transport within user's premises:** always transport in closed containers that are upright and secure. Ensure that persons transporting the product know what to do in the event of an accident or spillage.
Factor IX Reagent	**Transport within user's premises:** always transport in closed containers that are upright and secure. Ensure that persons transporting the product know what to do in the event of an accident or spillage.
Substrate Reagent	**Transport within user's premises:** always transport in closed containers that are upright and secure. Ensure that persons transporting the product know what to do in the event of an accident or spillage.
Substrate Buffer	**Transport within user's premises:** always transport in closed containers that are upright and secure. Ensure that persons transporting the product know what to do in the event of an accident or spillage.

Transport in bulk according to IMO instruments : Not applicable.

Section 15. Regulatory information

U.S. Federal regulations : **TSCA 4(a) proposed test rules**: glycine
TSCA 4(a) final test rules: p-nitroaniline
TSCA 8(a) PAIR: p-nitroaniline
TSCA 8(a) CDR Exempt/Partial exemption: Not determined

Clean Air Act Section 112 (b) Hazardous Air Pollutants (HAPs) : Not listed

Clean Air Act Section 602 Class I Substances : Not listed

Section 15. Regulatory information

Clean Air Act Section 602 Class II Substances : Not listed

DEA List I Chemicals (Precursor Chemicals) : Not listed

DEA List II Chemicals (Essential Chemicals) : Not listed

SARA 302/304

Composition/information on ingredients

Name	%	EHS	SARA 302 TPQ		SARA 304 RQ	
			(lbs)	(gallons)	(lbs)	(gallons)
Factor X Reagent						
sodium azide	0.04	Yes.	500	-	1000	-
Factor IX Reagent						
sodium azide	0.0224	Yes.	500	-	1000	-
Substrate Buffer						
sodium azide	0.0193	Yes.	500	-	1000	-

SARA 304 RQ : 4719949.7 lbs / 2142857.1 kg

SARA 311/312

Classification : Not applicable.

Composition/information on ingredients

Name	%	Classification
Factor X Reagent		
sodium azide	≤0.1	ACUTE TOXICITY (oral) - Category 2 ACUTE TOXICITY (dermal) - Category 1
Factor IX Reagent		
calcium chloride	≥10 - ≤25	EYE IRRITATION - Category 2A
sodium azide	≤0.1	ACUTE TOXICITY (oral) - Category 2 ACUTE TOXICITY (dermal) - Category 1
Substrate Buffer		
sodium azide	≤0.1	ACUTE TOXICITY (oral) - Category 2 ACUTE TOXICITY (dermal) - Category 1

State regulations

Massachusetts : None of the components are listed.

New York : None of the components are listed.

New Jersey : None of the components are listed.

Pennsylvania : None of the components are listed.

California Prop. 65

This product does not require a Safe Harbor warning under California Prop. 65.

International regulations

Chemical Weapon Convention List Schedules I, II & III Chemicals

Not listed.

Section 16. Other information

History

Date of issue/Date of revision : 3/19/2024

Version : 1

Section 16. Other information

Key to abbreviations : ATE = Acute Toxicity Estimate
BCF = Bioconcentration Factor
GHS = Globally Harmonized System of Classification and Labelling of Chemicals
IATA = International Air Transport Association
IBC = Intermediate Bulk Container
IMDG = International Maritime Dangerous Goods
LogPow = logarithm of the octanol/water partition coefficient
MARPOL = International Convention for the Prevention of Pollution From Ships, 1973 as modified by the Protocol of 1978. ("Marpol" = marine pollution)
UN = United Nations N/A = Not available SGG = Segregation Group

Indicates information that has changed from previously issued version.