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## 1. IDENTIFICATION

### Product identifier

Product code **S231**  
Product name **Retarder**  
Product category **System 2 Series SV Vinyl Screen Ink**

### Other means of identification

Synonyms None

### Recommended use of the chemical and restrictions on use

Recommended use Industrial Printing Operations

### Details of the supplier of the safety data sheet

UNITED STATES	UNITED KINGDOM
Nazdar Company	Nazdar Limited
8501 Hedge Lane Terrace	Barton Road
Shawnee, KS 66227	Heaton Mersey
Tel: +001-913-422-1888	Stockport, England SK4 3EG
Tel: +001-800-677-4657	Tel: +44 161 442 2111
Fax: +001-913-422-2294	
www.nazdar.com	

### Emergency telephone number

USA: Chemtrec: +001-800-424-9300  
Outside USA: Chemtrec: +001-703-527-3887  
24 Hour Emergency Phone Number

## 2. HAZARDS IDENTIFICATION

### Classification

Acute toxicity - Dermal	Category 4 - (H312)
Acute toxicity - Inhalation (Vapors)	Category 4 - (H332)
Acute toxicity - Inhalation (Dusts/Mists)	Category 4 - (H332)
Skin corrosion/irritation	Category 2 - (H315)
Serious eye damage/eye irritation	Category 1 - (H318)
Flammable liquids	Category 3 - (H226)

### Label elements



Signal word  
Danger

### Hazard statements

H226 - Flammable liquid and vapor  
H312 - Harmful in contact with skin  
H315 - Causes skin irritation

H318 - Causes serious eye damage  
 H332 - Harmful if inhaled

**Precautionary Statements**

P210 - Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking  
 P280 - Wear protective gloves/protective clothing/eye protection/face protection  
 P305 + P351 + P338 - IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing  
 P310 - Immediately call a POISON CENTER or doctor  
 P403 + P235 - Store in a well-ventilated place. Keep cool

**Hazards not otherwise classified (HNOC)**

No information available.

### 3. COMPOSITION/INFORMATION ON INGREDIENTS

**Mixture**

Chemical name	CAS No	Weight-%	Trade secret	Note
Ethylene glycol monobutyl ether acetate	112-07-2	80 - 100	*	
Cyclohexanone	108-94-1	10 - 30	*	

\*The exact percentage (concentration) of composition has been withheld as a trade secret.

### 4. FIRST-AID MEASURES

**Description of first aid measures**

<b>General Advice</b>	Show this safety data sheet to the doctor in attendance.
<b>Eye Contact</b>	Immediately flush with plenty of water. After initial flushing, remove any contact lenses and continue flushing for at least 15 minutes. Get medical attention if irritation develops and persists.
<b>Skin Contact</b>	Wash off immediately with soap and plenty of water for at least 15 minutes. Remove contaminated clothing. If irritation (redness, rash, blistering) develops, get medical attention.
<b>Inhalation</b>	If breathing is irregular or stopped, administer artificial respiration. Get medical attention immediately. Remove person to fresh air and keep comfortable for breathing.
<b>Ingestion</b>	Do NOT induce vomiting. Never give anything by mouth to an unconscious person. Call a physician or poison control center immediately.

**Most important symptoms and effects, both acute and delayed**

None under normal use conditions.

**Indication of any immediate medical attention and special treatment needed**

**Notes to Physician** Treat symptomatically.

### 5. FIRE-FIGHTING MEASURES

**Suitable Extinguishing Media**

Water spray. Carbon dioxide (CO<sub>2</sub>). Foam. Dry chemical. Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.

**Unsuitable Extinguishing Media**

No information available.

**Specific Hazards Arising from the Chemical**

Thermal decomposition can lead to release of irritating gases and vapors. May emit toxic fumes under fire conditions.

**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. Sealed containers may rupture when heated. Cool containers / tanks with water spray.

## 6. ACCIDENTAL RELEASE MEASURES

### Personal precautions, protective equipment and emergency procedures

**Personal Precautions** Evacuate personnel to safe areas. Remove all sources of ignition. Keep people away from and upwind of spill/leak. Avoid contact with eyes, skin and clothing. Ventilate the area. Avoid breathing dust or vapor.

### Environmental precautions

Prevent further leakage or spillage if safe to do so. Prevent product from entering drains. Local authorities should be advised if significant spillages cannot be contained. Keep out of drains, sewers, ditches and waterways.

### Methods and material for containment and 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). Use clean non-sparking tools to collect absorbed material.

## 7. HANDLING AND STORAGE

### Precautions for safe handling

**Handling** Ensure adequate ventilation. Do not eat, drink or smoke when using this product. Use personal protective equipment as required.

### Conditions for safe storage, including any incompatibilities

**Storage** Keep away from open flames, hot surfaces and sources of ignition. Keep out of the reach of children. Keep containers tightly closed in a dry, cool and well-ventilated place. Keep container closed when not in use.

**Incompatible Products** Strong oxidizing agents. Strong acids. Strong bases. Reducing agent.

## 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

### Control parameters

#### Exposure limits

Chemical name	ACGIH TLV
Ethylene glycol monobutyl ether acetate 112-07-2	TWA: 20 ppm
Cyclohexanone 108-94-1	TWA: 20 ppm STEL: 50 ppm Skin

Chemical name	OSHA PEL
Cyclohexanone 108-94-1	TWA: 50 ppm TWA: 200 mg/m <sup>3</sup>

Chemical name	OSHA PEL (vacated)
Cyclohexanone 108-94-1	TWA: 25 ppm TWA: 100 mg/m <sup>3</sup> Skin

Chemical name	Ontario TWAEV
Ethylene glycol monobutyl ether acetate 112-07-2	TWA: 20 ppm
Cyclohexanone 108-94-1	TWA: 20 ppm STEL: 50 ppm Skin

Chemical name	Mexico OEL (TWA)
Ethylene glycol monobutyl ether acetate 112-07-2	TWA/VLE-PPT: 20 ppm
Cyclohexanone 108-94-1	TWA/VLE-PPT: 20 ppm STEL/PPT-CT: 50 ppm

### Appropriate engineering controls

#### Engineering Measures

In case of insufficient ventilation, wear suitable respiratory equipment. Provide a good standard of general ventilation. Natural ventilation is from doors, windows etc. Controlled ventilation means air is supplied or removed by a powered fan. Users are advised to consider national Occupational Exposure Limits or other equivalent values.

### Individual protection measures, such as personal protective equipment

#### Eye/Face Protection

Wear safety glasses with side shields (or goggles). Ensure that eyewash stations and safety showers are close to the workstation location. If splashes are likely to occur, wear suitable face shield.

#### Skin Protection

Wear impervious protective clothing, including boots, gloves, lab coat, apron or coveralls, as appropriate, to prevent skin contact.

#### Hand Protection

Chemical resistant protective gloves.  
Suitable materials also with prolonged, direct contact (Recommended: Protective index 6, corresponding >480 minutes of permeation time): eg. nitrile rubber (0.4 mm), chloroprene rubber (0.5 mm), polyvinylchloride (0.7 mm) and other  
Supplementary note: The specifications are based on tests, literature data and information of glove manufacturers. Taking into account the varying conditions, the practical usage of a chemical-protective glove in practice may be much shorter than the permeation time determined through testing.  
Due to different glove types, the manufacturer's directions for use should be observed. Replace gloves immediately when torn or any change in appearance is noticed such as dimension, color, flexibility.

#### 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. Selection of air-purifying or positive-pressure supplied-air will depend on the specific operation and the potential airborne concentration of the material.

#### General Hygiene Considerations

Handle in accordance with good industrial hygiene and safety practice. Avoid contact with eyes, skin and clothing. Wear suitable gloves and eye/face protection. Regular cleaning of equipment, work area and clothing is recommended. Wash hands before eating, drinking or smoking. Wash contaminated clothing before reuse.

## 9. PHYSICAL AND CHEMICAL PROPERTIES

### Information on basic physical and chemical properties

<b>Physical state</b>	Liquid	<b>Appearance</b>	Water-white
<b>Odor</b>	Characteristic	<b>Odor Threshold</b>	No information available
<b>Property</b>	<b>Values</b>	<b>Remarks • Method</b>	
<b>pH</b>		No data available	
<b>Melting Point / Freezing Point</b>	No information available	No data available	
<b>Boiling Point / Boiling Range</b>	> 149 °C / 300 °F		
<b>Flash Point</b>	58 °C / 136 °F	Setaflash closed cup	
<b>Evaporation rate</b>		No data available	
<b>Flammability Limit in Air</b>			
<b>Upper flammability limit</b>		No data available	
<b>Lower flammability limit</b>		No data available	
<b>Vapor Pressure</b>		No data available	
<b>Vapor Density</b>		No data available	

<b>Specific Gravity</b>	0.94	
<b>Water Solubility</b>		No data available
<b>Solubility in other solvents</b>		No data available
<b>Partition coefficient: n-octanol/water</b>		No data available
<b>Autoignition Temperature</b>	No information available	No data available
<b>Hyphen</b>		No data available
<b>Kinematic viscosity</b>		No data available
<b>Dynamic viscosity</b>		No data available
<b>Explosive Properties</b>	No data available	
<b>Oxidizing Properties</b>	No data available	

**Other information**

<b>Photochemically Reactive</b>	No
<b>Weight Per Gallon (lbs/gal)</b>	7.86

VOC by weight % (less water)	VOC by volume % (less water)	VOC lbs/gal (less water)	VOC grams/liter (less water)
100	100	7.86	942.2

**10. STABILITY AND REACTIVITY****Reactivity**

No information available.

**Chemical stability**

Stable under normal conditions.

**Possibility of hazardous reactions**

None under normal processing.

**Conditions to avoid**

Keep away from open flames, hot surfaces and sources of ignition.

**Incompatible materials**

Strong oxidizing agents. Strong acids. Strong bases. Reducing agent.

**Hazardous decomposition products**

Thermal decomposition can lead to release of irritating gases and vapors. Carbon monoxide. Carbon dioxide (CO<sub>2</sub>).

**11. TOXICOLOGICAL INFORMATION****Information on likely routes of exposure**

<b>Inhalation</b>	Specific test data for the substance or mixture is not available. Harmful if inhaled. (based on components).
<b>Eye Contact</b>	Specific test data for the substance or mixture is not available.
<b>Skin Contact</b>	Specific test data for the substance or mixture is not available. Harmful in contact with skin. (based on components).
<b>Ingestion</b>	Specific test data for the substance or mixture is not available.

Chemical name	Oral LD50
Ethylene glycol monobutyl ether acetate 112-07-2	= 2400 mg/kg ( Rat )
Cyclohexanone 108-94-1	= 1544 mg/kg ( Rat )

Chemical name	Dermal LD50
Ethylene glycol monobutyl ether acetate 112-07-2	= 1500 mg/kg ( Rabbit )
Cyclohexanone	= 947 mg/kg ( Rabbit )

108-94-1	
<b>Chemical name</b>	<b>Inhalation LC50</b>
Ethylene glycol monobutyl ether acetate 112-07-2	> 400 ppm ( Rat ) 4 h
Cyclohexanone 108-94-1	> 6.2 mg/L ( Rat ) 4 h

### Symptoms related to the physical, chemical and toxicological characteristics

**Symptoms** Specific test data for the substance or mixture is not available.

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

**Skin corrosion/irritation** Specific test data for the substance or mixture is not available. Causes skin irritation (pain, redness and swelling). (based on components).

**Eye damage/irritation** Specific test data for the substance or mixture is not available. Causes serious eye damage. (based on components).

**Irritation** Specific test data for the substance or mixture is not available.

**Corrosivity** Specific test data for the substance or mixture is not available.

**Sensitization** Specific test data for the substance or mixture is not available.

**Mutagenic Effects** Specific test data for the substance or mixture is not available.

**Carcinogenic effects** Specific test data for the substance or mixture is not available.

**Reproductive Effects** Specific test data for the substance or mixture is not available.

**STOT - single exposure** Specific test data for the substance or mixture is not available.

**STOT - repeated exposure** Specific test data for the substance or mixture is not available.

**Chronic Toxicity** Specific test data for the substance or mixture is not available.

**Aspiration hazard** Specific test data for the substance or mixture is not available.

**Carcinogenicity** The table below indicates whether each agency has listed any ingredient as a carcinogen.

Chemical name	ACGIH
Ethylene glycol monobutyl ether acetate 112-07-2	A3
Cyclohexanone 108-94-1	A3

### Numerical measures of toxicity - Product Information

**Unknown acute toxicity** 0 % of the mixture consists of ingredient(s) of unknown toxicity

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

<b>ATEmix (oral)</b>	7,720.00 mg/kg
<b>ATEmix (dermal)</b>	1,398.30 mg/kg
<b>ATEmix (inhalation-dust/mist)</b>	1.50 mg/l
<b>ATEmix (inhalation-vapor)</b>	11.00 mg/l

## 12. ECOLOGICAL INFORMATION

### Ecotoxicity

Specific test data for the substance or mixture is not available.

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

Chemical name	Algae/aquatic plants
Ethylene glycol monobutyl ether acetate 112-07-2	72h EC50 Desmodesmus subspicatus: > 500 mg/L

Chemical name	Fish
Ethylene glycol monobutyl ether acetate	96h LC50 Oncorhynchus mykiss: 20 - 40 mg/L

112-07-2	
Cyclohexanone 108-94-1	96h LC50 Pimephales promelas: 481 - 578 mg/L (flow-through) 96h LC50 Pimephales promelas: = 8.9 mg/L

<b>Chemical name</b>	<b>Crustacea</b>
Ethylene glycol monobutyl ether acetate 112-07-2	48h EC50 Daphnia magna: = 37 mg/L

**Persistence and Degradability**

No information available.

**Bioaccumulation**

<b>Chemical name</b>	<b>Partition coefficient</b>
Ethylene glycol monobutyl ether acetate 112-07-2	1.51
Cyclohexanone 108-94-1	0.86

### 13. DISPOSAL CONSIDERATIONS

**Waste treatment methods****Waste Disposal Methods**

Contain and dispose of waste according to local regulations.

**Contaminated Packaging**

Empty containers should be taken to an approved waste handling site for recycling or disposal.

### 14. TRANSPORT INFORMATION

**Note:**

This information is not intended to convey all specific transportation requirements relating to this product. Transportation classifications may vary by container volume and may be influenced by regional or country variations in regulations. Additional transportation information can be found in the specific regulations for your mode of transportation. It is the responsibility of the transporting organization to follow all applicable laws, regulations and rules relating to the transportation of the material.

**DOT**

In the U.S. and Canada, this material may be reclassified as a combustible liquid and is not regulated, via surface transportation, in containers less than 119 gallons or 450 liters [per 49 CFR 173.150 (f)] [per Transportation of Dangerous Goods Regulations/Clear Language Part 1.33].

**UN/ID no**

UN1210

**Proper Shipping Name**

Printing Ink Related Material

**Transport hazard class(es)**

3

**Packing Group**

III

**ICAO / IATA / IMDG / IMO****UN/ID no**

UN1210

**Proper Shipping Name**

Printing Ink Related Material

**Transport hazard class(es)**

3

**Packing Group**

III

### 15. REGULATORY INFORMATION

**International Inventories**

For further information, please contact: All substances are listed as ACTIVE on the TSCA Inventory. Supplier (manufacturer/importer/downstream user/distributor).

**U.S. Federal Regulations**

**SARA 313**

Section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 (SARA). This product contains a chemical or chemicals which are subject to the reporting requirements of the Act and Title 40 of the Code of Federal Regulations, Part 372.

Chemical name	CAS No	Weight-%	SARA 313 - Threshold Values %
Ethylene glycol monobutyl ether acetate	112-07-2	80 - 100	1.0

**Clean Air Act, Section 112 Hazardous Air Pollutants (HAPs) (see 40 CFR 61)**

This product contains the following substances which are listed hazardous air pollutants (HAPS) under Section 112 of the Clean Air Act:

Chemical name	CAS No	Weight-%
Ethylene glycol monobutyl ether acetate	112-07-2	80 - 100

**US State Regulations**

Chemical name	Massachusetts
Cyclohexanone 108-94-1	X

Chemical name	Minnesota Right To Know
Cyclohexanone 108-94-1	X

Chemical name	New Jersey
Ethylene glycol monobutyl ether acetate 112-07-2	X
Cyclohexanone 108-94-1	X

Chemical name	Pennsylvania
Ethylene glycol monobutyl ether acetate 112-07-2	X
Cyclohexanone 108-94-1	X

**California Proposition 65**

This product does not contain any chemicals known to State of California to cause cancer, birth, or any other reproductive defects

**Canada**

Chemical name	NPRI - National Pollutant Release Inventory
Ethylene glycol monobutyl ether acetate 112-07-2	Part 5 Substance - Volatile Organic Compounds with Additional Reporting Requirements Part 4 Substance - Criteria Air Contaminants
Cyclohexanone 108-94-1	Part 4 Substance - Criteria Air Contaminants

**16. OTHER INFORMATION**

HMIS	Health hazards	Flammability	Reactivity	Personal Protection
	2 *	2	0	X

**Key or legend to abbreviations and acronyms used in the safety data sheet****Legend - Section 8: EXPOSURE CONTROLS/PERSONAL PROTECTION**

TWA	TWA (time-weighted average)
STEL	STEL (Short Term Exposure Limit)
Ceiling	Maximum limit value

**ACGIH: (American Conference of Governmental Industrial Hygienists)**

A1 - Known Human Carcinogen

A2 - Suspected Human Carcinogen

A3 - Animal Carcinogen

**IARC: (International Agency for Research on Cancer)**

Group 1 - Carcinogenic to Humans

Group 2A - Probably Carcinogenic to Humans

Group 2B - Possibly Carcinogenic to Humans

Group 3 - Not Classifiable as to Carcinogenicity in Humans

**NTP: (National Toxicity Program)**

Known - Known Carcinogen

Reasonably Anticipated to be a Human Carcinogen

**OSHA: (Occupational Safety & Health Administration)**

X - Present

**Revision Date**

May-10-2023

**Pursuant to NOM-018-STPS-2015**

This information within is considered correct but is not exhaustive and will be used for guidance only, which is based on the current knowledge of the substance or mixture and is applicable to the appropriate safety precautions for the product.

**Disclaimer**

The information provided in this Safety Data Sheet 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 guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered 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 materials or in any process, unless specified in the text.

**End of Safety Data Sheet**