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**1. IDENTIFICATION OF THE SUBSTANCE/PREPARATION AND OF THE COMPANY/UNDERTAKING**

**Product identifier**

Product code **S231**  
Product name **Retarder**  
Product category **System 2 (S2) Series Gloss Vinyl Screen Ink**

**Other means of identification**

Synonyms None

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

Recommended use 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: 1-913-422-1888	Stockport, England SK4 3EG
Tel: 1-800-677-4657	Tel: +44 161 442 2111
Fax: 1-913-422-2294	
<a href="http://www.nazdar.com">www.nazdar.com</a>	

**Emergency telephone number**

USA: Chemtrec: 1-800-424-9300  
Outside USA: Chemtrec: 1-703-527-3887  
24 Hour Emergency Phone Number

**2. HAZARDS IDENTIFICATION**

**Classification**

Acute toxicity - Oral	Category 4 - (H302)
Acute toxicity - Dermal	Category 4 - (H312)
Acute toxicity - Inhalation (Vapors)	Category 4 - (H332)
Acute toxicity - Inhalation (Dusts/Mists)	Category 4 - (H332)
Flammable liquids	Category 3 - (H226)

**Label elements**



**Signal Word**  
Warning

**Hazard Statements**

H302 - Harmful if swallowed  
H312 - Harmful in contact with skin  
H332 - Harmful if inhaled

H226 - Flammable liquid and vapor

### Precautionary Statements

P210 - Keep away from heat/sparks/open flames/hot surfaces. - No smoking

### Hazards not otherwise classified (HNOC)

No information available.

## 3. COMPOSITION/INFORMATION ON INGREDIENTS

### Mixture

Component	CAS-No	Weight %	Trade Secret	Note
Ethylene glycol monobutyl ether acetate	112-07-2	60 - 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

#### General Advice

Show this safety data sheet to the doctor in attendance.

#### Eye Contact

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.

#### Skin Contact

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.

#### Inhalation

Remove person to fresh air and keep comfortable for breathing. If breathing is irregular or stopped, administer artificial respiration. Get medical attention immediately.

#### Ingestion

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

Foam. Carbon dioxide (CO<sub>2</sub>). Dry chemical. Water spray. 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. Cool containers / tanks with water spray. Sealed containers may rupture when heated.

## 6. ACCIDENTAL RELEASE MEASURES

### Personal precautions, protective equipment and emergency procedures

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

**Environmental precautions**

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

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

**Conditions for safe storage, including any incompatibilities**

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

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

## 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

**Control parameters**

**Exposure limits**

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

Component	OSHA PEL
Cyclohexanone 108-94-1	TWA: 25 ppm TWA: 100 mg/m <sup>3</sup> TWA: 50 ppm TWA: 200 mg/m <sup>3</sup> Skin

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

Component	Mexico OEL (TWA)
Cyclohexanone 108-94-1	TWA/LMPE-PPT: 50 ppm TWA/LMPE-PPT: 200 mg/m <sup>3</sup> STEL/LMPE-CT: 100 ppm STEL/LMPE-CT: 400 mg/m <sup>3</sup>

**Appropriate engineering controls**

**Engineering Measures** 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. In case of insufficient ventilation, wear suitable respiratory equipment.

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

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

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

**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.

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

## 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

<u>Property</u>	<u>Values</u>	<u>Remarks • Method</u>
pH		No data available
Melting point/freezing point		No data available
Boiling point/Boiling Range	> 149 °C / 300 °F	
Flash Point	58 °C / 136 °F	Setaflash closed cup
Evaporation rate		No data available
Flammability Limit in Air		
Upper flammability limit		No data available
Lower flammability limit		No data available
Vapor Pressure		No data available
Vapor Density		No data available
Specific Gravity	0.94	
Water Solubility		No data available
Solubility in other solvents		No data available
Partition coefficient: n-octanol/water		No data available
Autoignition Temperature		No data available
Decomposition temperature		No data available
Kinematic viscosity		No data available
Dynamic viscosity		No data available

<b>Explosive Properties</b>	No data available
<b>Oxidizing Properties</b>	No data available

**Other Information**

Photochemically Reactive	No
Weight Per Gallon (lbs/gal)	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 acids. Strong bases. Strong oxidizing agents. Reducing agent.

**Hazardous Decomposition Products**

Thermal decomposition can lead to release of irritating gases and vapors. Carbon dioxide (CO2). Carbon monoxide.

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

<b>Inhalation</b>	There is no data for this product.
<b>Eye Contact</b>	There is no data for this product.
<b>Skin Contact</b>	There is no data for this product.
<b>Ingestion</b>	There is no data for this product.

Component	Oral LD50
Ethylene glycol monobutyl ether acetate 112-07-2	1600 mg/kg ( Rat )
Cyclohexanone 108-94-1	800 mg/kg ( Rat )

Component	LD50 Dermal
Ethylene glycol monobutyl ether acetate 112-07-2	1480 mg/kg ( Rabbit )

Component	Inhalation LC50
Cyclohexanone 108-94-1	8000 ppm ( Rat ) 4 h 10.7 mg/L ( Rat ) 4 h

**Information on toxicological effects**

**Symptoms** There is no data for this product.

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

<b>Skin corrosion/irritation</b>	There is no data for this product.
<b>Eye damage/irritation</b>	There is no data for this product.
<b>Irritation</b>	There is no data for this product.
<b>Corrosivity</b>	There is no data for this product.
<b>Sensitisation</b>	There is no data for this product.
<b>Mutagenic Effects</b>	There is no data for this product.
<b>Reproductive Effects</b>	There is no data for this product.
<b>STOT - single exposure</b>	There is no data for this product.
<b>STOT - repeated exposure</b>	There is no data for this product.
<b>Chronic Toxicity</b>	There is no data for this product.
<b>Aspiration hazard</b>	There is no data for this product.
<b>Carcinogenicity</b>	The table below indicates whether each agency has listed any ingredient as a carcinogen.

Component	ACGIH
Ethylene glycol monobutyl ether acetate 112-07-2	A3
Cyclohexanone	A3

108-94-1	
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### Numerical measures of toxicity - Product Information

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

ATEmix (oral)	1,333.00 mg/kg
ATEmix (dermal)	1,611.00 mg/kg mg/l
ATEmix (inhalation-dust/mist)	1.50 mg/l
ATEmix (inhalation-vapor)	11.00 mg/l

## 12. ECOLOGICAL INFORMATION

### Ecotoxicity

None known

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

Component	Algae/aquatic plants
Ethylene glycol monobutyl ether acetate 112-07-2	72h EC50 Desmodesmus subspicatus: >500 mg/L
Cyclohexanone 108-94-1	96h EC50 Chlorella vulgaris: 20 mg/L

Component	Fish
Cyclohexanone 108-94-1	96h LC50 Pimephales promelas: 481 - 578 mg/L [flow-through]

Component	Crustacea
Cyclohexanone 108-94-1	24h EC50 Daphnia magna: 800 mg/L

### Persistence and Degradability

No information available.

### Bioaccumulation

No information available.

Component	Partition coefficient
Ethylene glycol monobutyl ether acetate 112-07-2	1.51
Cyclohexanone 108-94-1	0.86

### Other adverse effects

No information available

## 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

**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  
**Hazard Class** 3  
**Packing Group** III

**ICAO / IATA / IMDG / IMO**

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**Proper Shipping Name** Printing Ink Related Material  
**Hazard Class** 3  
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<b>15. REGULATORY INFORMATION</b>
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**International Inventories**

All components are listed on the TSCA Inventory. For further information, please contact: 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.

Component	CAS-No	Weight %	SARA 313 - Threshold Values
Ethylene glycol monobutyl ether acetate	112-07-2	60 - 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:.

Component	CAS-No	Weight %
Ethylene glycol monobutyl ether acetate	112-07-2	60 - 100

**U.S. State Regulations**

Component	Massachusetts Right To Know
Cyclohexanone 108-94-1	X

Component	Minnesota Right To Know
Cyclohexanone 108-94-1	X

Component	New Jersey Right To Know
Ethylene glycol monobutyl ether acetate 112-07-2	X
Cyclohexanone 108-94-1	X

Component	Pennsylvania Right To Know
Ethylene glycol monobutyl ether acetate 112-07-2	X
Cyclohexanone 108-94-1	X

**California Prop. 65**

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

**Canada**

Component	NPRI - National Pollutant Release Inventory
Ethylene glycol monobutyl ether acetate 112-07-2	Part 5, Other Groups and Mixtures Part 4 Substance as set out in Section 65 of the List of Toxic Substances in Schedule 1 of the Canadian Environmental Protection Act, 1999
Cyclohexanone 108-94-1	Part 4 Substance as set out in Section 65 of the List of Toxic Substances in Schedule 1 of the Canadian Environmental Protection Act, 1999

**16. OTHER INFORMATION**

<b>HMIS:</b>	<b>Health</b>	<b>Flammability</b>	<b>Reactivity</b>	<b>Personal Protection</b>
	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

**NTP: (National Toxicity Program)**

- Known - Known Carcinogen
- Reasonably Anticipated to be a Human Carcinogen

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

X - Present

**Revision Date** May-31-2015

**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 MSDS**