

**Published Date**  
May-15-2019

**Revision Date**  
May-15-2019

**Revision Number**  
2.5

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

**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** 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**

H312 - Harmful in contact with skin  
H315 - Causes skin irritation

H318 - Causes serious eye damage  
 H332 - Harmful if inhaled  
 H226 - Flammable liquid and vapor

**Precautionary Statements**

P261 - Avoid breathing dust/fume/gas/mist/vapors/spray  
 P264 - Wash face, hands and any exposed skin thoroughly after handling  
 P332 + P313 - If skin irritation occurs: Get medical advice/attention  
 P305 + P351 + P338 - IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing  
 P233 - Keep container tightly closed  
 P280 - Wear protective gloves/protective clothing/eye protection/face protection  
 P403 + P235 - Store in a well-ventilated place. Keep cool  
 P210 - Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. 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**

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

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: 50 ppm TWA: 200 mg/m <sup>3</sup>

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

Component	Ontario TWA EV
Ethylene glycol monobutyl ether acetate 112-07-2	TWA: 20 ppm
Cyclohexanone	TWA: 20 ppm

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

#### 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. 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
<b>Property</b>	<b>Values</b>	<b>Remarks • Method</b>	
pH		No data available	
Melting Point / Freezing Point		No data available	
Boiling Point / Boiling Range	> 149 °C / 300 °F	Setaflash closed cup	
Flash Point	58 °C / 136 °F	No data available	
Evaporation rate		No data available	
Flammability Limit in Air		No data available	
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
Explosive Properties	No data available
Oxidizing Properties	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 (CO<sub>2</sub>). Carbon monoxide.

## 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.

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

Component	Dermal LD50
Ethylene glycol monobutyl ether acetate 112-07-2	= 1500 mg/kg ( Rabbit )

Cyclohexanone 108-94-1	= 947 mg/kg ( Rabbit )
<b>Component</b>	<b>Inhalation LC50</b>
Ethylene glycol monobutyl ether acetate 112-07-2	> 400 ppm ( Rat ) 4 h
Cyclohexanone 108-94-1	= 8000 ppm ( Rat ) 4 h

**Information on toxicological effects**

**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.

Component	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>	1,398.00 mg/kg mg/l
<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

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

Component	Fish
Cyclohexanone	96h LC50 Pimephales promelas: 481 - 578 mg/L (flow-through)

108-94-1	96h LC50 Pimephales promelas: = 8.9 mg/L
<b>Component</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**

No information available

<b>Component</b>	<b>Partition coefficient</b>
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

**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**

<b>UN/ID no.</b>	UN1210
<b>Proper Shipping Name</b>	Printing Ink
<b>Hazard Class</b>	3
<b>Packing Group</b>	III

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].

**ICAO / IATA / IMDG / IMO**

<b>UN/ID no.</b>	UN1210
<b>Proper Shipping Name</b>	Printing Ink
<b>Hazard Class</b>	3
<b>Packing Group</b>	III

### 15. REGULATORY INFORMATION

**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
Cyclohexanone 108-94-1	Part 4 Substance

**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-15-2019

**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**