University of Reading

DNSA reagent base

Safety data sheet

Prepared in accordance with Regulation (EC) No. 1907/2006 (REACH)

Version 1.0 | Created: 7 June 2016 | Revised: Not applicable

SECTION 1. Identification of the substance/mixture and of the company/undertaking

Product name and description	DNSA reagent base
Trade name/Brand	Not applicable
Synonym(s)	3,5-dinitrosalicylic acid reagent base
REACH Number	Not applicable, mixture
CAS Number	Not applicable, mixture
EC Number	Not applicable, mixture
Recommended use	This product is a laboratory preparation for educational use only. It is to be used for the colorimetric estimation of reducing sugars. **IMPORTANT: Before use, add 20 mL of 2 M sodium hydroxide (NaOH) to the bottle containing the yellow-coloured DNSA reagent base. The colour of the liquid will change from opaque yellow to clear, bright orange. Top up with 13 mL of distilled or deionised water to a final volume of 100 mL.** ***Refer to Section 16 for more information.***
Uses advised against	None
Supplier of the product and of this safety data sheet	National Centre for Biotechnology Education (NCBE) University of Reading 2 Earley Gate Whiteknights READING RG6 6AU United Kingdom T: 0118 9873743 F: 0118 9750140 E: NCBE@reading.ac.uk W: www.ncbe.reading.ac.uk
Manufacturer of the product	National Centre for Biotechnology Education (NCBE) University of Reading 2 Earley Gate Whiteknights READING RG6 6AU United Kingdom T: 0118 9873743 F: 0118 9750140 E: NCBE@reading.ac.uk W: www.ncbe.reading.ac.uk
Emergency telephone number	0118 9873743 (NCBE, University of Reading. 08.30–17.00 weekdays only)

SECTION 2. Hazards identification

Classification according to Regulation (EC) No. 1272/2008 [CLP]	H315	Skin irritation (Category 2)
	H302	Harmful if swallowed
	H335	May cause respiratory irritation

Label elements*

WARNING	
H315	Skin irritation (Category 2)
H302	Harmful if swallowed
H335	May cause respiratory irritation
P261	Avoid breathing dust/mist/vapours/spray.
P280	Wear protective gloves/ protective clothing/ eye 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.
P302+P352	IF ON SKIN: Wash with plenty of soap and water

Other hazards None found.

** Some statements above are omitted from the product label, as the volume of the mixture is less than 125 ml.*

SECTION 3. Composition/Information on the ingredients

Name of component (Synonym) [CLP index number]	Weight (%)	EC (EINECS) number	CAS number	REACH registration number	Classification under Regulation (EC) No 1272/2008 [CLP]*
Water	61.72	231-791-2	7732-18-5	–	Not classified
Sodium potassium tartrate tetrahydrate (Rochelle salt)	37.04	206-156-8	304-59-6	–	Not classified
3,5-dinitrosalicylic acid (3,5-Dinitro-2-hydroxybenzoic acid)	1.23	210-204-3	609-99-4	–	Acute Tox. 4 (H302) Skin Irrit. 2 (H315) STOT SE 3 (H335)

* *Note that these classifications refer to the pure (100%) substances, not to the mixture supplied.*

For the full text of the safety classifications (H-statements), refer to Section 16.

SECTION 4. First aid measures

General information Consult a physician. Show this Safety Data Sheet to the doctor in attendance.

Inhalation Move the casualty to fresh air. If respiratory problems occur, consult a doctor.

Skin contact IF ON SKIN: Wash with plenty of soap and water. If skin irritation occurs get medical advice/attention. Wash contaminated clothing as normal before reuse.

Eye contact Check for and remove contact lenses if present. Rinse opened eye immediately with running water, also wash under the eyelids, for several minutes. Seek medical advice if irritation persists.

Ingestion Rinse out mouth with water, then drink plenty of water.
Do not induce vomiting. Seek medical attention.

Self-protection of the first aider	Wear gloves and eye protection. Rinse your hands with soap and water after handling anything that has been contaminated with the solution.
Most important symptoms and effects, both acute and delayed	Irritation and redness.
Indication of any immediate medical attention and special treatment	Wash affected area immediately with water.
Advice to doctor	Treat symptomatically.

SECTION 5. Fire fighting measures

Extinguishing media
Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.

Special hazards arising from the substance or mixture
Carbon oxides, nitrogen oxides (NOx)

Advice for firefighters
Wear protective equipment and self-contained breathing apparatus if the quantity of the substance involved warants it.

SECTION 6. Accidental release measures

The volumes of DNSA reagent base that are likely to be used in a school are small enough that any spill can be cleaned up easily and safely.

Personal precautions, protective equipment and emergency procedures	Ensure adequate ventilation. Wear personal protective equipment, such as a lab coat, gloves and eye protection. Avoid breathing dust, vapours or mist. Keep students away from the spill.
Environmental precautions	If spilt, the DNSA reagent should be washed away (diluted) with plenty of water.
Methods and materials for containment and cleaning up	Soak up the spill with inert absorbent material (*e.g.*, paper towels). Place the waste in a suitable, closed container (*e.g.*, a plastic bag) for disposal. Wash away any residue with plenty of water.

SECTION 7. Handling and storage

Precautions for safe handling	Ensure adequate ventilation and avoid the formation of aerosols. Wear personal protective equipment, such as a lab coat, gloves and eye protection. Do not get into eyes, on skin or clothing. Do not breathe in vapours or dust from dried-up solution. Do not ingest.
Conditions for safe storage	Keep the DNSA reagent in a tightly-closed container. Store in a dry, well-ventilated place at room temperature. Do not refrigerate. The DNSA reagent, with or without added NaOH, can be stored for at least 24 months. Note that the mixture without NaOH may separate into two layers; this does not affect its performance and once NaOH has been added, the mixture is stable.

SECTION 8. Exposure control/personal protection

Control parameters

Exposure limits	Not applicable.
Biological limit values	No information available.
Derived no effect level	No information available.
Predicated no effect level	No information available.
Exposure controls	Handle in accordance with good laboratory hygiene and safety practice. Wash hands before breaks and after handling the mixture.
Personal protective equipment	Wear safety glasses with side shields conforming to EN166 or goggles. Handle with gloves. Gloves must be inspected before use. Use proper glove removal technique to avoid skin contact with this product. Dispose of contaminated gloves after use in accordance with local regulations.

SECTION 9. Physical and chemical properties

Appearance	Opaque bright yellow colour.
Physical state	Liquid.
Odour	Odourless.
Odour threshold	Does not apply, as the mixture is odourless.
pH	7.3 @ 20 °C
Melting point / Range	No data available.
Boiling point / Range	> 100 °C @ 760 mm Hg.
Flash point	Not applicable; does not flash.
Evaporation rate	No data available.
Flammability (solid, gas)	Not applicable as the mixture is a liquid.
Explosion limits	No data available.
Vapour pressure	No data available.
Vapour density	No data available.
Density @ 20 °C	~ 1.20 g / ml
Relative density	Not applicable as the mixture is a liquid.
Solubility in water	Soluble.
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.
Viscosity	No data available.
Explosive properties	No data available.
Oxidising properties	No data available.

Other information
No additional information relevant to the safe use of the substance.

SECTION 10. Stability and reactivity

Reactivity	No information available.
Chemical stability	When stored at room temperature, the product is stable.
Possibility of hazardous reactions	No known hazardous reactions.
Conditions to avoid	Do not refrigerate.
Incompatible materials	Strong oxidising agents, strong bases, strong reducing agents.
Hazardous decomposition products	No hazardous decomposition products.

SECTION 11. Toxicological information

Acute toxicity	DNSA:LD50 Oral (rat) 860 mg/kg
Irritation	No information available.
Corrosivity	No information available.
Sensitisation	No information available.
Repeated dose toxicity	No information available.
Carcinogenicity	No component of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.
Mutagenicity	No information available.
Toxicity for reproduction	No information available.

SECTION 12. Ecological information

Toxicity	No information available.
Persistence and degradability	No information available.
Bioaccumulative potential	No information available.
Mobility in soil	No information available.
Results of PBT and vPVB assessment	No information available.
Other adverse effects	None known.

SECTION 13. Disposal considerations

Waste from residues/unused product	Wash down a foul water drain with water. Wipe up any spills of the solution with absorbent material (*e.g.*, paper towels) and water. Dispose of the paper towels in the normal waste.
Contaminated packaging	Rinse with water and dispose of in normal waste according to local regulations. Recycle where appropriate facilities are available.

SECTION 14. Transport information

UN number	Not applicable.
UN proper shipping name	Not applicable.
Transport hazard class	Not applicable.
Packaging group	Not applicable.
Environmental hazards	Not applicable.

SECTION 15. Regulatory information

Not regulated.

SECTION 16. Other information

Full text of GHS hazard statements

H302	Harmful if swallowed.
H315	Causes skin irritation.
H335	May cause respiratory irritation.

Preparation

The DNSA reagent base is supplied *without* sodium hydroxide. This is because we are unable to send liquids containing sodium hydroxide in the post. You will have to add sodium hydroxide solution to the liquid supplied before it can be used. Do this as follows:

- Wear eye protection (goggles), protective gloves and a lab coat or apron.
- Using the 10 mL syringe supplied, add 20 mL of 2 M sodium hydroxide (NaOH) to the bottle containing the yellow-coloured DNSA mixture. *The colour of the liquid will change from opaque yellow to clear, bright orange.* [2 M NaOH contains 0.80 g of NaOH in 100 mL of solution.]
- Top up with 13 mL of distilled or deionised water to a final volume of 100 mL.
- Ensure that the bottle is closed tightly and swirl to mix the contents.
- Apply the new contents/safety label to the bottle, covering the existing label.
- If there are a few undissolved yellow lumps in the liquid, leave the bottle to stand at room temperature for an hour or so or overnight until all of the solids have dissolved.

IMPORTANT

Note that this Safety Data Sheet refers to the DNSA reagent base *before* you have added sodium hydroxide to it. Once the sodium hydroxide has been added, the concentration of sodium hydroxide in the complete DNSA reagent is 0.4 M. This concentration of sodium hydroxide *causes skin irritation and serious eye irritation (pH 13.7)*. Protective gloves, eye protection and protective clothing *e.g.*, a lab coat or apron should be worn.

The information given in this Safety Data Sheet is based on the present state of our knowledge.

This Safety Data Sheet has been compiled and is solely intended for this product.

END OF SAFETY DATA SHEET