MATERIAL SAFETY DATA SHEET

SODIUM FORMALDEHYDE SULPHOXYLATE (SAFOLITE)

1. Identification of Substance and Manufacturer

1.1 Product details

Product name	:	**Sodium Formaldehyde Sulphoxylate**
CAS No.	:	6035 – 47 – 8, 149-44-0
Chemical Formula		$NaHSO_2CH2O.2H_2O$
Molecular weight	:	154.12 g/mol
Synonyms	:	SFS, Sodium oxymethanesulfinic acid; Sodium sulphoxylate formaldehyde; Formaldehyde hydrosulphite; Formaldehydesulphoxylic acid sodium salt; Hydroxymethane sulphinic acid sodium salt; Sodium hydroxymethanesulphinate; Sodium methanalsulphoxylate; Sodium oxymethanesulphinic acid
Reach Registration No	:	**01 – 2119487952 – 23 – 0001**
Relevant Identified Uses	:	Redox Catalyst in Emulsion polymerization process for ABS, SBR, NBR, Acrylates and also in various Latex for paint and Adhesive industries.

1.2 Company details

TRANSPEK – SILOX INDUSTRY PRIVATE LIMITED

Kalali Road, Atladra, Vadodara – 390 012, Gujarat, India

Telephone : +91 265 2680401-05

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1.4 Emergency contact details

Telephone: +91 265 2680401, Email : info@transpek-silox.com

Contact Person: Factory Manager

2. Hazard identification

2.1 Classification of the substance: *Classification according to regulation (EC) 1272/2008 [EU-GHS/CLP]*

	NFPA Rating	HMIS Rating
Health	1	1
Flammability	0	0
Reactivity	0	0

Classification according to EU Directives 67/548/EEC or 1999/45/EC

Possible risk of irreversible effect. Contact with acids liberates toxic gas.

2.2 Labeling element: Labeling according Regulation (EC) No 1272/2008 and OSHA 29CFR1910. 1200

Pictogram

GHS08

GHS07

Signal word	:	Warning.
Hazard statements	:	H303 – May be harmful if swallowed.
		H315 – Causes skin irritation
	:	H319 – Causes serious eye irritation.
	:	H335 – May causes respiratory irritation.
	:	H341 – Suspected of causing genetic defect.
	:	H361d – Suspected of damaging the unborn child (If exposed).
	:	H413 – May causes long lasting harmful effects to aquatic life.
Precautionary statements ***(Prevention)***	:	P201 – Obtain special instructions before use.
	:	P202 – Do not handle until all safety precautions have been read and understood.
	:	P260 – Avoid breathing dust / fume / mist / vapors / spray.
	:	P270 – Do not eat, drink or smoke when using this product.
	:	H271 – Use only outdoors or in a well-ventilated area
	:	P273 – Avoid release to the environment.
	:	P280 – Wear protective gloves/protective clothing/eye protection/face protection
	:	P281, P280 – Suspected of causing genetic defects, use protective gloves / eyes protection / face protection.

Precautionary statements ***(Response)***	: P312	***If inhaled***, Remove victim to fresh air area and keep in at rest in a comfortable position. Call a DOCTOR if feels unwell.
	: P304 + P340 –	***If inhaled***, Remove victim to fresh air area and keep in at rest in a comfortable position. Call a DOCTOR if feels unwell
	: P305 + P351 + P338 –	***If in eye,*** Rinse cautiously with water for several minutes, remove contact lenses, if present & easy to do. Continue rinsing
	P308 + P313 –	***If Eye irritation persists***: Get medical advice.
	: P391 – Collect spillage	
	: P302+P352	***If on Skin***: Wash with plenty of water and soap.
Precautionary statements ***(Storage)***	: P403 + P233 – Store in a well-ventilated place. Keep container tightly closed	
	: P405 – Store locked up.	
	P407 – Maintain air gap between stacks / pellets	
	: P420 – Store away from other material.	
Precautionary statements ***(Disposal)***	P501 – Dispose of contents / container to hazardous or special waste collection area or in accordance with local / regional / national / international regulations.	
Supplemental Hazard information (EU)	EUH031 – Contact with acids liberates toxic gas.	
R-phrase(s)	: R68 – Possible risk of irreversible effects.	
	: R31 – Contact with acids liberates toxic gas	
S-phrase(s)	: S 7/8 – Keep container tightly closed and dry.	
	: S36/37 – Wear suitable protective clothing and gloves	

Hazards Not Otherwise Classified

No specific dangers known, if the regulations/notes for storage and handling are considered. If applicable information is provided in this section on other hazards which do not result in classification but which may contribute to the overall hazards of the substance or mixture.

3. Composition / Information on ingredients

According to regulation 1994 / 2012 OSHA Hazard communication standard: 29 CFR Part 1910.1200

CAS No.	Content	Substance Name & Formula	EINECS / EC No
149 – 44 – 0 6035 – 47 – 8	≥ 97 %	Sodium formaldehyde sulphoxylate $CH_2(OH)SO_2Na.2H_2O$	205 – 739 – 4

4. First-aid measures

4.1

- **General advice:**
  Consult a physician
- **In case of skin contact:**
  - DECONTAMINATION: Remove all the contaminated clothing, jewelry, footwear and place them in plastic bags.
  - Wash exposed areas with soap and water for 10 to 15 minutes with gentle sponging to avoid skin breakdown.
  - A physician may need to examine the area if irritation or pain persists.
- **If inhaled:**
  - For ingestion, rinse mouth and administer 5 ml/kg up to 200 ml of water for dilution if the patient can swallow, has a strong gag reflex, and does not drool If breathed in, move person into fresh air. If not breathing, give artificial respiration.
  - If fumes or combustion products are inhaled remove from contaminated area.
  - Lay patient down. Keep warm and rested.
  - Prostheses such as false teeth, which may block airway, should be removed, where possible, prior to initiating first aid procedures.
  - Transport to hospital, or doctor, without delay.
  - Inhalation of vapors (mists, fumes) may cause lung oedema.
  - Corrosive substances may cause lung damage (e.g. lung oedema, fluid in the lungs).
  - As this reaction may be delayed up to 24 hours after exposure, affected individuals need complete rest (preferably in semi-recumbent posture) and must be kept under medical observation even if no symptoms are (yet) manifested.
  - Before any such manifestation, the administration of a spray containing a dexamethasone derivative or beclomethasone derivative may be considered.
  - This must definitely be left to a doctor or person authorised by him/her.
- **In case of eye contact:**
  - Wash out immediately with fresh running water.
  - Ensure complete irrigation of the eye by keeping eyelids apart and away from eye and moving the eyelids by occasionally lifting the upper and lower lids.
  - Seek medical attention without delay; if pain persists or recurs seek medical attention.
  - Removal of contact lenses after an eye injury should only be undertaken by skilled personnel.

- **If swallowed:**
  - Rinse mouth immediate with water.
  - Never give liquid to a person showing signs of being sleepy or with reduced awareness; i.e. becoming unconscious.
  - DO NOT induce vomiting.
  - If vomiting occurs, lean patient forward or place on left side (head-down position, if possible) to maintain open airway and prevent aspiration.
  - Observe the patient carefully.
  - Give water to rinse out mouth, then provide liquid slowly and as much as casualty can comfortably drink.
  - Seek medical advice.

4.2 Symptoms and effects, both acute and delayed

Suspected of causing genetic defects, suspected of damaging fertility or the unborn child.

4.3 Indication of immediate medical attention and special treatment needed

Eye wash station and emergency showers should ve available.

5. Fire-fighting measures

5.1 Extinguishing media:

- *Suitable extinguishing media:* Dry powder Carbon dioxide (CO2), Foam, Water fog.

5.2 Special hazards arising from the substance:

- Fire incompatibility
  - Avoid contamination with oxidising agents i.e. nitrates, oxidising acids, chlorine bleaches, pool chlorine etc. as ignition may result
- *Hazards during fire – fighting:*

May liberate toxic gases Sulphur dioxide (SO2), Sulfur oxides (SOx), Carbon monoxide (CO), Carbon dioxide (CO2), other pyrolysis products typical of burning organic material.
May emit poisonous fumes.

The substances / group of substances mentioned may be released.

5.3 Precautions for fire-fighters:

- *Protective equipment:*

  Wear self contained breathing apparatus and fully protective suite including rubber boots and suitable rubber gloves for fire fighting

- *Fire fighting:*
  - Alert Fire Brigade and tell them location and nature of hazard.
  - Wear breathing apparatus plus protective gloves.
  - Prevent, by any means available, spillage from entering drains or water courses.
  - Use water delivered as a fine spray to control fire and cool adjacent area.

5.4 Further information:

Contaminated extinguishing water must be disposed of in accordance with local regulations.

6. Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures

- ***Eyes:*** Wear safety goggles.
- ***Skin:*** Wear appropriate nitrile or rubber gloves, apron and safety shoes. Avoid contact with skin, eyes and clothing.
- ***Inhalation:*** Avoid dust formation. Avoid breathing dust, vapors, mist or gas. Wear respiratory protection.
- ***Other:*** Ensure adequate ventilation, Evacuate personnel to safe areas. Keep unprotected persons away.

Note: See section 8 for details

6.2 Environmental precautions

Prevent further leakage or spillage if safe to do so. Do not let product enter drains & sub soil/ soil. Discharge into the environment must be avoided.

Note: See section 12 for details

6.3 Method for containment and cleaning up

- Isolate hazard area.
- Evacuate all unauthorized personnel not participating in rescue operation from the area.
- Avoid entry in danger area. Stop traffic.
- Switch off electric supply.
- Use explosion-proof lamp & non-sparking tools.
- Spillage should be handled by trained cleaning personnel properly equipped with respiratory and eye protection with an electrically protected vacuum cleaner or by brushing without creating dust.
- Do not flush with water.
- Pick up spillage along with Soda ash into suitable containers, close it properly and arrange at suitable place.
- Dispose of all the waste and clean up material under valid legal waste regulations.

7. Handling and storage

7.1 Precautions for safe handling

- Ensure good ventilation / exhaustion at work place.
- Keep containers tightly sealed.
- Store in cool and dry place.
- Closed containers should be opened in well – ventilated area.
- Avoid dust.
- Avoid contact with skin, eyes and clothing. Wash hands with soap and water and other exposed areas with water after handling.
- Do not expose to excessive heat; avoid processing temperatures in excess of 45°C (113°F). Formaldehyde may be released when processing at high temperature or mixed with acids.
- Avoid generation of dusts; dust/air mixtures may create a potential dust explosion hazard.

7.2 Precautions for safe storage

- Store in cool and dry place.
- Keep container tightly closed in a dry and well-ventilated place.
- Never allow product to get in contact with water during storage.
- Do not store near acids and oxidants**.**
- Product is moisture sensitive. Keep away from heat. Protect from temperature above 50 °C.
- Avoid processing temperature in excess of 45 °C (113 °F). Formaldehyde may released when processing at high temperature or mixed with acids.
- If material has a strong odor, this is an indication of decomposition. Do not use if product is decomposed.
- Check all containers are clearly labelled and free from leaks.

7.3 Storage incompatibility.

- Contact with acids produces toxic fumes.
- Incidents involving interaction of active oxidants and reducing agents, either by design or accident, are usually very energetic and examples of so-called redox reactions.
- Contact with water can cause heating and decomposition
- Avoid any contamination of this material as it is very reactive and any contamination is potentially hazardous
    - **Hydrosulfites (dithionites):**
        - may react explosively with strong oxidising agents.
        - react with water or steam to produce corrosive acid solutions and sulfur oxide fumes - aqueous solutions are incompatible with oxidisers, strong acids, alkalis, ammonia, aliphatic amines, alkanolamines, alkylene oxides, amides, epichlorohydrin, organic anhydrides, isocyanates, nitromethane, vinyl acetate.
        - aqueous solutions attack metals in presence of moisture.
        - generate gaseous sulfur dioxide in contact with oxidising and nonoxidising acids
    - **Sulfur dioxide:**
        - reacts with water or steam forming sulfurous acid; reaction may be violent
        - reacts with acrolein, alcohols, aluminium powder, alkali metals, amines, bromine, pentafluoride, caustics, caesium, acetylene carbide, chlorates, chlorine trifluoride, chromium powder, copper or its alloy powders, diethylzinc, fluorine, lead dioxide, lithium acetylene carbide, metal powders, monolithium acetylide-ammonia, nitryl chloride, potassium acetylene carbide, potassium acetylide, potassium chlorate, rubidium carbide, silver azide, sodium, sodium acetylide, stannous oxide; reaction may be violent
        - decomposes above 60 deg. C releasing oxides of sulphur.
        - Incompatible with alkalis, alkylene oxides, ammonia, aliphatic amines, alkanolamines, amides, organic anhydrides, caesium monoxide, epichlorohydrin, ferrous oxide, halogens, interhalogens, isocyanates, lithium nitrate, manganese, metal acetylides, metal oxides, perbromyl fluoride, red phosphorus, potassium azide, rubidium acetylide, sodium hydride, sulfuric acid
        - attacks some plastics, coatings and rubber
        - attacks metals, especially chemically active metals, in the presence of moisture.

8. Exposure controls and personal protection

8.1 Control parameters: Compound with occupational exposure limits.

Product produced Formaldehyde due to decomposition.

Material	*Source*	*Type*	*ppm*	*mg / m³*
Formaldehyde	OSHA	PEL	1	-
		STEL	2	-
	ACGIH TLV	STEL	1	1.5
		TWA	2	3

The product does not contain any relevant quantity of materials with critical values that have to be monitored at the work place.

- *Additional information / advice about design of technical systems:*

Provide local exhaust ventilation to control vapors / mists.

Use properly operating chemical fume hood designed for hazardous chemicals and having an average face velocity of at least 100 feet per minutes.

8.2 Exposure controls:

- *General protective hygienic measures:*
  - Keep away from foodstuffs, beverages and food.
  - Instantly remove any solid and impregnated garments.
  - Wash hands during breaks and at the end of the work.
  - Maintain an ergonomically appropriate working environment.
  - Handle in accordance with safety practice.
- *Personal protective equipments*

Eye/face protection

- Face shield and safety glasses Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU).

Skin protection

- Handle with gloves. Gloves must be inspected prior to use. Use proper glove removal technique (Without touching glove's outer surface) to avoid skin contact with this product. Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practices.
- Personal hygiene is a key element of effective hand care. Neoprene rubber gloves, Experience indicates that the following polymers are suitable as glove materials for protection against undissolved, dry solids, where abrasive particles are not present. polychloroprene. nitrile rubber, Butyl tuber.
- Wash and dry hands.

Body Protection

Complete suit protecting against chemicals, The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace. Wear safety shoes.

Respiratory protection

Where risk assessment shows air-purifying respirators are appropriate use a full-face particle respirator type N100 (US) or type P3 (EN 143) respirator cartridges as a backup to engineering controls. If the respirator is the sole means of protection, use a full-face supplied air respirator. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU)..

9. Physical and chemical properties

a.	**Physical state at 20 ^{0}C**	Powder / Chips / Rice / Peas
b.	**Colour**	White
c.	**Odour**	Product specific
d.	**pH of 10.0% solution**	~ 9.0 – 11.0
e.	**Melting point/range**	52^0 C (Decomposition)
f.	**Boiling point**	Thermal decomposition temperature is > 52 °C, hence boiling point is not determined
g.	**Flash point**	>100 °C (>212 °F) (DIN 51758)
h.	**Specific gravity**	1.744 g/cm^3 (OECD 109)
i.	**Water solubility**	500 - 600 g/l at 20^{0}C+/- 0.5^{0}C (OECD 105)
j.	**Auto-ignition temperature (^{0}C)**	Not applicable as material decomposes at ~ 51°C
k.	**Explosion lower/upper limit %**	Not explosive
l.	**Partition coefficient n- octanol / water at 20 ^{0}C**	Log Pow: 3.4 estimated.
m.	**Evaporation rate**	The product is non volatile solid.
n.	**Vapour pressure**	2.68 mPa @ 20 °C
o.	**Viscosity**	Not applicable as product is solid
p.	**Oxidizing properties**	No data available

10. Stability and reactivity

10.1 **Reactivity:** Not inherently chemically reactive**.** Reacts vigorously with acids and oxidizers.

10.2 **Stability:** Stable under recommended storage and handling conditions.

10.3 **Possibility of hazardous reactions:** Reacts with acids to release toxic gases like sulfur dioxide, hydrogen sulfide, formaldehyde. Reacts violently with Oxidizing agent.

10.4 **Material to avoid / Incompatible material:** Acids, oxidizing agents, low flash point material.

10.5 **Condition to avoid:** Avoid humidity, Keep away from heat.

10.6 **Hazardous decomposition products:** Sulfur dioxide (SO_2), Formaldehyde (HCHO)

Note: See section 7 for details

11. Toxicological information

11.1 **Primary routes of exposure:**

Routes of entry for compounds are ingestion and inhalation but may also include eye and skin contact.

11.2 **Acute toxicity:**

Acute oral toxicity : LD50 (oral/rat) > 5000 mg/kg (OECD 401)

Acute toxicity (intraperitoneal): LD50 (rat) > 2000 mg/kg

Skin corrosion/irritation (rabbit): Non-irritant (OECD 405)

Serious eye damage/eye irritation (rabbit): Non irritant

CMR effects (carcinogenetic, mutagenicity and toxicity for reproduction): Micronucleus test in bone marrow: The substance is clastogenic in the micronucleus test. Mutagenic Category 2

Aspiration hazard: Not applicable.

Potential health effects

Inhalation: May be harmful if inhaled. May cause respiratory tract irritation.

Ingestion: Harmful if swallowed.

Skin: May be harmful if absorbed through skin. May cause skin irritation.

Eyes: May cause eye irritation.

11.3 **Signs and Symptoms of Exposure:** To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated

Chronic toxicity / effect

Carcinogenicity: *IARC:* 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.

Reproductive toxicity: Suspected of damaging fertility or the unborn child.

Sub-acute to chronic toxicity: Oral NOAEL (28d) 300 mg/kg (rat OECD 422)

Germ cell mutagenicity: In vitro tests showed mutagenic effects, Genotoxicity in vivo – mouse Intraperitoneal – positive.

SFS has been tested as part of the US HPV Program (testing on certain high production volume chemicals); it was concluded from the data that SFS is clastogenic in the Micronucleus Test (an in vivo cytogenetic test to evaluate the genotoxic effects on erythrocytes in bone marrow in mice). In a 28-day rat feeding study the parental NOAEL (no observed adverse effect level) for SFS was established at 300 mg/kg body weight per day; the definitive reproduction, breeding and developmental NOAEL was established as being 1000 mg/kg body weight per day

Signs and Symptoms of Exposure: To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated.

12. Ecological information

12.1 Toxicity: Acute/prolonged toxicity to fish

LC50 (Leuciscus idus)(96 hr): 10,000 mg/l (OECD 203)

Acute/prolonged toxicity to aquatic invertebrates

EC50 (Daphnia magna)(48-hr): 20 mg/l (OECD 202)

Acute/prolonged toxicity to aquatic plants

IC50 (Scenedesmus subspicatus)(72-hr): 370 mg/l (OECD 201)

Toxicity to bacteria, to soil dwelling organisms and to terrestrial plants

EC50 (Bacteria: activated sludge)(72-hr): >1000 mg/l (DIN 38421/8)

Chronic toxicity to aquatic organisms

Inhibition of the degradation activity of activated sludge is not anticipated during the correct introduction of appropriate low concentrations into biological treatment systems.

BOD_5 = 14 mg O_2/g COD = 490 mg O_2/g (DIN 38412/43)

General effect

May cause long-lasting harmful effects to aquatic life. Product does not contain organically bound halogen; it will not increase the AOX value when discharged from treatment plant/ into water.

12.2 Persistence and degradability:

Inherently biodegradable (OECD 302B), 58% elimination at 29 days (OECD 301B)

12.3 Bioaccumulative potential

No bioaccumulation is expected when the Log P_{ow} is <1, (SFS Log P_ow: -6.17)

12.4 Results of PBT and vPvB assessment (EC reg. 453/2010)

Not PBT; not vPvB

12.5 German WGK classification

WGK = 1 (self-assessment)

12.6 Other adverse effects

Breakdown regulations: Directive 96/82/EC: Not listed

No other adverse effects are identified.

13. Disposal considerations

13.1 Waste treatment method

Product

Must not be disposed together with household garbage. Disposal must be in accordance with local regulations.

Contaminated packaging

Uncontaminated packs can be re-used.

Packs that cannot be cleaned should be disposed of in the same manner as the contents.

Legislation addressing waste disposal requirements may differ by country, state and/ or territory. Each user must refer to laws operating in their area. In some areas, certain wastes must be tracked. A Hierarchy of Controls seems to be common, The user should investigate:

- Reduction
- Reuse
- Recycling
- Disposal (if all else fails)

This material may be recycled if unused, or if it has not been contaminated so as to make it unsuitable for its intended use.

- **DO NOT** allow wash water from cleaning or process equipment to enter drains.
- It may be necessary to collect all wash water for treatment before disposal.
- In all cases disposal to sewer may be subject to local laws and regulations and these should be considered first.
- Where in doubt contact the responsible authority.
- Recycle wherever possible.
- Consult manufacturer for recycling options or consult local or regional waste management authority for disposal if no suitable treatment or disposalacility can be identified.
- Dispose of by: burial in a land-fill specifically licensed to accept chemical and / or pharmaceutical wastes or Incineration in a licensed apparatus (after
- admixture with suitable combustible material)
- Decontaminate empty containers. Observe all label safeguards until containers are cleaned and destroyed.

14. Transportation information

14.1 Shipping description:

DOT	**:**	Not regulated as hazardous for transport
ADR-RID	**:**	Not regulated as hazardous for transport
IMDG	**:**	Not regulated as hazardous for transport
IATA	**:**	Not regulated as hazardous for transport

15. Regulatory information

This safety data sheet complies with the requirements of Regulation (EC) No. 1902/2006

15.1 Safety, health and environmental regulations / legislation specific for the substance or mixture

NFPA Hazard codes	Health	Fire	Reactivity
	1	0	0
HMIS III rating	Health	Flammability	Physical hazards
	1	0	0

SARA Title III Section 311/312 (40CFR370): Chronic health hazard

SARA Title III Section 313 (40CFR372): No reportable components

CERCLA Status (40CFR302): No Reportable Quantity components

TSCA Inventory Status: Reported/included

Chemicals Known to the State of California to Cause Cancer or Reproductive Toxicity:

None known to be in the product at levels requiring a warning.

REACH registration / pre-registration: This material has been registered, pre-registered or is otherwise exempted from registration under the Registration, Evaluation and Authorization of Chemical Substances.

Hazard Statement: *Refer Section 2.2*

Precautionary Statement: *Refer Section 2.2*

R-phrase(s): R68 – Possible risk of irreversible effects

R31 – Contact with acids liberates toxic gas

S-phrase(s): P501 – Dispose of contents / container to hazardous or special waste collection area or in accordance with local / regional / national / international regulations.

EUH032 – Contact with acids liberates toxic gas

16. Other information

Employers should use this information only as a supplement to other information gathered by them, and should make independent judgment of suitability of this information to ensure proper use and protect the health and safety of employees. This information is furnished without warranty, and any use of the product not in conformance with this Material Safety Data Sheet, or in combination with any other product or process, is the responsibility of the user.

We support worldwide Responsible care initiative. We value and care our employees, customers, suppliers and neighbors and the protection of the environment.

Our commitment to Responsible care is integral to conducting our business and operating our facilities in a safe and environmentally responsible fashion, supporting our customers and suppliers in ensuring the safe and environmentally sound handling of our product and minimizing the impact of our operations on society and the environment during manufacturing, storage, transport, use and disposal of our products.

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----------***End of MSDS***----------