



**Be Right™**

# SAFETY DATA SHEET

Issue Date 25-Jan-2021

Revision Date 10-Feb-2025

Version 7.2

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## 1. IDENTIFICATION

### Product identifier

**Product Name** StablCal® Formazin Standard, 20 NTU

### Other means of identification

**Product Code(s)** 2660101

**Safety data sheet number** M03409

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

**Recommended Use** Standard solution. Water Analysis.

**Uses advised against** Consumer use.

**Restrictions on use** For Laboratory Use Only.

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

#### **Manufacturer Address**

Hach Company, P.O.Box 389, Loveland, CO 80539, USA, +1(970) 669-3050

#### **Emergency telephone number**

+1(303) 623-5716 - 24 Hour Service

## 2. HAZARDS IDENTIFICATION

### Classification

#### **Regulatory Status**

Safety Data Sheets are a sub-requirement of the Occupational Safety and Health Administration (OSHA) Hazard Communication Standard, 29 CFR Subpart 1910.1200. This Hazard Communication Standard does not apply to various subcategories including anything defined by OSHA as an "article".

According to OSHA, Article means a manufactured item other than a fluid or particle: (i) which is formed to a specific shape or design during manufacture; (ii) which has end use function(s) dependent in whole or in part upon its shape or design during end use; and (iii) which under normal conditions of use does not release more than very small quantities, e.g., minute or trace amounts of a hazardous chemical (as determined under paragraph (d) of this section), and does not pose a physical hazard or health risk to employees.

|                           |            |
|---------------------------|------------|
| Respiratory sensitization | Category 1 |
| Skin sensitization        | Category 1 |

#### **Hazards not otherwise classified (HNOC)**

Not applicable

### Label elements

#### **Signal word**

Danger



#### Hazard statements

H317 - May cause an allergic skin reaction

H334 - May cause allergy or asthma symptoms or breathing difficulties if inhaled

#### Precautionary statements

P261 - Avoid breathing dust/fume/gas/mist/vapors/spray

P285 - In case of inadequate ventilation wear respiratory protection

P304 + P341 - IF INHALED: If breathing is difficult, remove victim to fresh air and keep at rest in a position comfortable for breathing

P342 + P311 - If experiencing respiratory symptoms: Call a POISON CENTER or doctor/physician

P501 - Dispose of contents/ container to an approved waste disposal plant

P272 - Contaminated work clothing should not be allowed out of the workplace

P280 - Wear protective gloves, protective clothing, eye protection, and face protection

P302 + P352 - IF ON SKIN: Wash with plenty of soap and water

P333 + P313 - If skin irritation or rash occurs: Get medical advice/attention

P363 - Wash contaminated clothing before reuse

#### Other Hazards Known

None

### 3. COMPOSITION/INFORMATION ON INGREDIENTS

#### Substance

Not applicable

#### Mixture

#### Chemical Family

Mixture.

#### Chemical nature

aqueous solution.

Percent ranges are used where confidential product information is applicable.

| Chemical name                                | CAS No.   | Percent Range | HMRIC # |
|----------------------------------------------|-----------|---------------|---------|
| 1,3,5,7-Tetraazatricyclo[3.3.1.1(3,7)]decane | 100-97-0  | <10%          | -       |
| Sodium sulfate                               | 7757-82-6 | <1%           | -       |
| Formaldehyde                                 | 50-00-0   | <0.1%         | -       |
| Diammonium sulfate                           | 7783-20-2 | <0.01%        | -       |

### 4. FIRST AID MEASURES

#### Description of first aid measures

#### General advice

Show this safety data sheet to the doctor in attendance.

#### Inhalation

May cause allergic respiratory reaction. If breathing has stopped, give artificial respiration. Get medical attention immediately. Remove to fresh air. Avoid direct contact with skin. Use barrier to give mouth-to-mouth resuscitation. Get immediate medical advice/attention.

#### Eye contact

Rinse thoroughly with plenty of water for at least 15 minutes, lifting lower and upper eyelids. Consult a physician.

|                                           |                                                                                                                                                                                                                                                                               |
|-------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Skin contact</b>                       | Wash with soap and water. May cause an allergic skin reaction. In the case of skin irritation or allergic reactions see a physician.                                                                                                                                          |
| <b>Ingestion</b>                          | May produce an allergic reaction. Do NOT induce vomiting. Clean mouth with water and drink afterwards plenty of water. Never give anything by mouth to an unconscious person. Get immediate medical advice/attention.                                                         |
| <b>Self-protection of the first aider</b> | Ensure that medical personnel are aware of the material(s) involved, take precautions to protect themselves and prevent spread of contamination. Avoid contact with skin, eyes or clothing. Avoid direct contact with skin. Use barrier to give mouth-to-mouth resuscitation. |

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

|                 |                                                                                                                               |
|-----------------|-------------------------------------------------------------------------------------------------------------------------------|
| <b>Symptoms</b> | May cause allergy or asthma symptoms or breathing difficulties if inhaled. Coughing and/ or wheezing. Itching. Rashes. Hives. |
|-----------------|-------------------------------------------------------------------------------------------------------------------------------|

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

|                           |                                                                        |
|---------------------------|------------------------------------------------------------------------|
| <b>Note to physicians</b> | May cause sensitization in susceptible persons. Treat symptomatically. |
|---------------------------|------------------------------------------------------------------------|

## 5. FIRE-FIGHTING MEASURES

|                                                       |                                                                                                                                       |
|-------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------|
| <b>Suitable Extinguishing Media</b>                   | Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.                               |
| <b>Unsuitable Extinguishing Media</b>                 | Caution: Use of water spray when fighting fire may be inefficient.                                                                    |
| <b>Specific hazards arising from the chemical</b>     | Product is or contains a sensitizer. May cause sensitization by inhalation and skin contact. May cause sensitization by skin contact. |
| <b>Hazardous combustion products</b>                  | This material will not burn. Carbon monoxide. Ammonia. Formaldehyde. Nitrogen oxides.                                                 |
| <b>Special protective equipment for fire-fighters</b> | Firefighters should wear self-contained breathing apparatus and full firefighting turnout gear. Use personal protection equipment.    |

## 6. ACCIDENTAL RELEASE MEASURES

|                    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
|--------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>U.S. Notice</b> | Only persons properly qualified to respond to an emergency involving hazardous substances may respond to a spill according to federal regulations (OSHA 29 CFR 1910.120(a)(v)) and per your company's emergency response plan and guidelines/procedures. See Section 13, Special Instructions for disposal assistance. Outside of the US, only persons properly qualified according to state or local regulations should respond to a spill involving chemicals. |
|--------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

**Personal precautions, protective equipment and emergency procedures**

|                             |                                                                                                                                                                                                          |
|-----------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Personal precautions</b> | Avoid contact with skin, eyes or clothing. Ensure adequate ventilation. Use personal protective equipment as required. Evacuate personnel to safe areas. Keep people away from and upwind of spill/leak. |
| <b>Other Information</b>    | Refer to protective measures listed in Sections 7 and 8.                                                                                                                                                 |

**Environmental precautions**

|                                  |                                                       |
|----------------------------------|-------------------------------------------------------|
| <b>Environmental precautions</b> | Prevent further leakage or spillage if safe to do so. |
|----------------------------------|-------------------------------------------------------|

**Methods and material for containment and cleaning up**

|                                 |                                                                                                                                                                              |
|---------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Methods for containment         | Prevent further leakage or spillage if safe to do so.                                                                                                                        |
| Methods for cleaning up         | Soak up with inert absorbent material (e.g. sand, silica gel, acid binder, universal binder, sawdust). Take up mechanically, placing in appropriate containers for disposal. |
| Prevention of secondary hazards | Clean contaminated objects and areas thoroughly observing environmental regulations.                                                                                         |
| Reference to other sections     | See section 8 for more information. See section 13 for more information.                                                                                                     |

## 7. HANDLING AND STORAGE

### Precautions for safe handling

|                         |                                                                                                                                                                                                                                                                                                                                                                                                                                         |
|-------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Advice on safe handling | Handle in accordance with good industrial hygiene and safety practice. Avoid contact with skin, eyes or clothing. Ensure adequate ventilation. Provide extract ventilation to points where emissions occur. In case of insufficient ventilation, wear suitable respiratory equipment. Do not eat, drink or smoke when using this product. Remove contaminated clothing and shoes. Take off contaminated clothing and wash before reuse. |
|-------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

### Conditions for safe storage, including any incompatibilities

|                    |                                                                                                                              |
|--------------------|------------------------------------------------------------------------------------------------------------------------------|
| Storage Conditions | Keep containers tightly closed in a dry, cool and well-ventilated place. Store locked up. Keep out of the reach of children. |
| Flammability class | Not applicable                                                                                                               |

## 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

### Control parameters

#### Exposure Guidelines

| Chemical name                                                  | ACGIH TLV                                                                  | OSHA PEL                                                                                                   | NIOSH                                                     |
|----------------------------------------------------------------|----------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------|
| 1,3,5,7-Tetraazatricyclo[3.3.1.1(3,7)]decane<br>CAS#: 100-97-0 | TWA: 1 mg/m <sup>3</sup> inhalable fraction and vapor<br>dermal sensitizer | NDF                                                                                                        | NDF                                                       |
| Formaldehyde<br>CAS#: 50-00-0                                  | TWA: 0.1 ppm<br>STEL: 0.3 ppm<br>dermal sensitizer;respiratory sensitizer  | TWA: 0.75 ppm<br>(vacated) TWA: 3 ppm<br>(vacated) STEL: 10 ppm<br>(vacated) Ceiling: 5 ppm<br>STEL: 2 ppm | IDLH: 20 ppm<br>Ceiling: 0.1 ppm 15 min<br>TWA: 0.016 ppm |

### Appropriate engineering controls

|                      |                                                     |
|----------------------|-----------------------------------------------------|
| Engineering Controls | Showers<br>Eyewash stations<br>Ventilation systems. |
|----------------------|-----------------------------------------------------|

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

|                        |                                                                                                                                                                                                                                        |
|------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Respiratory protection | No protective equipment is needed under normal use conditions. If exposure limits are exceeded or irritation is experienced, ventilation and evacuation may be required. Wear breathing apparatus if exposed to vapors/dusts/aerosols. |
|------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

|                 |                                                                                                                                                                                                                                                                                                            |
|-----------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Hand Protection | Wear suitable gloves. Gloves must be inspected prior to use. The selected protective gloves have to satisfy the specifications of EU Directive 2016/425 and the standard EN 374 derived from it. Chemical resistant gloves made of butyl rubber or nitrile rubber category III according to EN 374-1:2016. |
|-----------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

|                     |                                                     |
|---------------------|-----------------------------------------------------|
| Eye/face protection | Wear safety glasses with side shields (or goggles). |
|---------------------|-----------------------------------------------------|

|                                        |                                                                                                                                                                                                                                                                                                                                                                                       |
|----------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Skin and body protection</b>        | Wear suitable protective clothing.                                                                                                                                                                                                                                                                                                                                                    |
| <b>General Hygiene Considerations</b>  | Avoid contact with skin, eyes or clothing. Wear suitable gloves and eye/face protection. Do not eat, drink or smoke when using this product. Remove and wash contaminated clothing and gloves, including the inside, before re-use. The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace. |
| <b>Environmental exposure controls</b> | Local authorities should be advised if significant spillages cannot be contained. Do not allow into any sewer, on the ground or into any body of water.                                                                                                                                                                                                                               |
| <b>Thermal hazards</b>                 | None under normal processing.                                                                                                                                                                                                                                                                                                                                                         |

## 9. PHYSICAL AND CHEMICAL PROPERTIES

### Information on basic physical and chemical properties

|                       |                                     |                       |                   |
|-----------------------|-------------------------------------|-----------------------|-------------------|
| <b>Physical state</b> | Liquid                              | <b>Color</b>          | white             |
| <b>Appearance</b>     | Turbid solution<br>aqueous solution | <b>Odor threshold</b> | No data available |
| <b>Odor</b>           | Odorless                            |                       |                   |

| <u>Property</u>                                        | <u>Values</u>                            | <u>Remarks • Method</u> |
|--------------------------------------------------------|------------------------------------------|-------------------------|
| <b>Molecular weight</b>                                | No data available                        |                         |
| <b>pH</b>                                              | 8.26                                     | @ 20 °C                 |
| <b>Melting point / freezing point</b>                  | ~ 0 °C / 32 °F                           |                         |
| <b>Initial boiling point and boiling range</b>         | ~ 100 °C / 212 °F                        |                         |
| <b>Evaporation rate</b>                                | No data available                        |                         |
| <b>Vapor pressure</b>                                  | 17.477 mm Hg / 2.33 kPa at 20 °C / 68 °F |                         |
| <b>Relative vapor density</b>                          | 0.62                                     |                         |
| <b>Specific gravity - VALUE 1</b>                      | 1.02                                     |                         |
| <b>Partition coefficient</b>                           | Not applicable                           |                         |
| <b>Soil Organic Carbon-Water Partition Coefficient</b> | Not applicable                           |                         |
| <b>Autoignition temperature</b>                        | No data available                        |                         |
| <b>Decomposition temperature</b>                       | No information available                 |                         |
| <b>Dynamic viscosity</b>                               | No data available                        |                         |
| <b>Kinematic viscosity</b>                             | No data available                        |                         |

### Solubility(ies)

#### Water solubility

| <u>Water solubility classification</u> | <u>Water solubility</u> | <u>Water Solubility Temperature</u> |
|----------------------------------------|-------------------------|-------------------------------------|
| Soluble                                | > 1000 mg/L             | 25 °C / 77 °F                       |

#### Solubility in other solvents

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| <u>Chemical Name</u> | <u>Solubility classification</u> | <u>Solubility</u> | <u>Solubility Temperature</u> |
|----------------------|----------------------------------|-------------------|-------------------------------|
| None reported        | No information available         | No data available | No information available      |

#### Other information

##### **Corrosive to metals**

**Steel Corrosion Rate**

No data available

**Aluminum Corrosion Rate**

No data available

##### **Volatile Organic Compounds (VOC) Content**

No information available See ingredients information below

| <b>Chemical name</b>                         | <b>CAS No.</b> | <b>Volatile organic compounds (VOC) content</b> | <b>CAA (Clean Air Act)</b> |
|----------------------------------------------|----------------|-------------------------------------------------|----------------------------|
| 1,3,5,7-Tetraazatricyclo[3.3.1.1(3,7)]decane | 100-97-0       | Not applicable                                  | X                          |
| Sodium sulfate                               | 7757-82-6      | No data available                               | -                          |
| Formaldehyde                                 | 50-00-0        | No data available                               | X                          |
| Diammonium sulfate                           | 7783-20-2      | No data available                               | -                          |

##### **Explosive properties**

**Upper explosion limit**

No data available

**Lower explosion limit**

No data available

##### **Flammable properties**

**Flash point**

No data available

**Flammability Limit in Air**

**Upper flammability limit:**

No data available

**Lower flammability limit:**

No data available

##### **Oxidizing properties**

No data available.

**Bulk density**

No data available

## **10. STABILITY AND REACTIVITY**

#### Reactivity

Not applicable.

#### Chemical stability

Stable under normal conditions.

#### **Explosion data**

**Sensitivity to Mechanical Impact** None.

**Sensitivity to Static Discharge** None.

#### Possibility of hazardous reactions

None under normal processing.

#### Hazardous polymerization

Hazardous polymerization does not occur.

**Conditions to avoid**

None known based on information supplied.

**Incompatible materials**

Strong oxidizing agents, strong acids, and strong bases.

**Hazardous decomposition products**

Ammonia. Carbon monoxide. Formaldehyde. Nitrogen oxides. Sodium oxides. Sulfur oxides.

## 11. TOXICOLOGICAL INFORMATION

**Information on likely routes of exposure**

**Product Information**

|                     |                                                                                                                                       |
|---------------------|---------------------------------------------------------------------------------------------------------------------------------------|
| <b>Inhalation</b>   | May cause sensitization in susceptible persons.                                                                                       |
| <b>Eye contact</b>  | No known effect based on information supplied.                                                                                        |
| <b>Skin contact</b> | Repeated or prolonged skin contact may cause allergic reactions with susceptible persons.<br>May cause sensitization by skin contact. |
| <b>Ingestion</b>    | May cause additional effects as listed under "Inhalation".                                                                            |

**Symptoms** Symptoms of allergic reaction may include rash, itching, swelling, trouble breathing, tingling of the hands and feet, dizziness, lightheadedness, chest pain, muscle pain, or flushing. Coughing and/ or wheezing. Itching. Rashes. Hives.

**Acute toxicity**

Based on available data, the classification criteria are not met

**Mixture**

No data available.

**Ingredient Acute Toxicity Data**

Test data reported below.

**Oral Exposure Route**

| Chemical name                                  | Endpoint type        | Reported dose | Exposure time | Toxicological effects | Key literature references and sources for data |
|------------------------------------------------|----------------------|---------------|---------------|-----------------------|------------------------------------------------|
| Formaldehyde (<0.1%)<br>CAS#: 50-00-0          | Rat LD <sub>50</sub> | 100 mg/kg     | None reported | None reported         | GESTIS                                         |
| Diammonium sulfate (<0.01%)<br>CAS#: 7783-20-2 | Rat LD <sub>50</sub> | 2840 mg/kg    | None reported | None reported         | GESTIS                                         |

**Dermal Exposure Route**

| Chemical name                         | Endpoint type           | Reported dose | Exposure time | Toxicological effects | Key literature references and sources for data |
|---------------------------------------|-------------------------|---------------|---------------|-----------------------|------------------------------------------------|
| Formaldehyde (<0.1%)<br>CAS#: 50-00-0 | Rabbit LD <sub>50</sub> | 270 mg/kg     | None reported | None reported         | GESTIS                                         |

**Inhalation (Dust/Mist) Exposure Route**

| Chemical name | Endpoint type | Reported dose | Exposure time | Toxicological effects | Key literature references and sources for data |
|---------------|---------------|---------------|---------------|-----------------------|------------------------------------------------|
|---------------|---------------|---------------|---------------|-----------------------|------------------------------------------------|

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|                                          |                         |            |         |               |      |
|------------------------------------------|-------------------------|------------|---------|---------------|------|
| Formaldehyde<br>(<0.1%)<br>CAS#: 50-00-0 | Rat<br>LC <sub>50</sub> | 0.578 mg/L | 4 hours | None reported | LOLI |
|------------------------------------------|-------------------------|------------|---------|---------------|------|

#### Unknown Acute Toxicity

0% of the mixture consists of ingredient(s) of unknown toxicity.

#### Acute Toxicity Estimations (ATE)

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

|                                      |                          |
|--------------------------------------|--------------------------|
| <b>ATEmix (oral)</b>                 | No information available |
| <b>ATEmix (dermal)</b>               | No information available |
| <b>ATEmix (inhalation-dust/mist)</b> | No information available |
| <b>ATEmix (inhalation-vapor)</b>     | No information available |
| <b>ATEmix (inhalation-gas)</b>       | No information available |

#### Skin corrosion/irritation

Based on available data, the classification criteria are not met.

#### Mixture

No data available.

#### Ingredient Skin Corrosion/Irritation Data

Test data reported below.

| Chemical name                                                         | Test method                                      | Species | Reported dose | Exposure time | Results                             | Key literature references and sources for data |
|-----------------------------------------------------------------------|--------------------------------------------------|---------|---------------|---------------|-------------------------------------|------------------------------------------------|
| 1,3,5,7-Tetraazatricyclo[3.3.1.1(3,7)]decane (<10%)<br>CAS#: 100-97-0 | OECD Test 404: Acute Dermal Corrosion/Irritation | Rabbit  | 500 mg        | 4 hours       | Not corrosive or irritating to skin | ECHA                                           |
| Sodium sulfate (<1%)<br>CAS#: 7757-82-6                               | Standard Draize Test                             | Rabbit  | 500 mg        | 4 hours       | Not corrosive or irritating to skin | ECHA                                           |
| Formaldehyde (<0.1%)<br>CAS#: 50-00-0                                 | Standard Draize Test                             | Human   | 0.150 mg      | 72 hours      | Corrosive to skin                   | RTECS                                          |
| Diammonium sulfate (<0.01%)<br>CAS#: 7783-20-2                        | Standard Draize Test                             | Rabbit  | 800 mg        | 20 hours      | Not corrosive or irritating to skin | ECHA                                           |

#### Serious eye damage/irritation

Based on available data, the classification criteria are not met.

#### Mixture

No data available.

#### Ingredient Eye Damage/Eye Irritation Data

Test data reported below.

| Chemical name                                                         | Test method                                   | Species | Reported dose | Exposure time | Results                             | Key literature references and sources for data |
|-----------------------------------------------------------------------|-----------------------------------------------|---------|---------------|---------------|-------------------------------------|------------------------------------------------|
| 1,3,5,7-Tetraazatricyclo[3.3.1.1(3,7)]decane (<10%)<br>CAS#: 100-97-0 | OECD Test 405: Acute Eye Corrosion/Irritation | Rabbit  | 100 mg        | 24 hours      | Not corrosive or irritating to eyes | ECHA                                           |
| Sodium sulfate                                                        | Standard Draize                               | Rabbit  | 90 mg         | 24 hours      | Not corrosive or                    | ECHA                                           |

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|                                                   |                         |        |          |               |                                        |       |
|---------------------------------------------------|-------------------------|--------|----------|---------------|----------------------------------------|-------|
| (<1%)<br>CAS#: 7757-82-6                          | Test                    |        |          |               | irritating to eyes                     |       |
| Formaldehyde<br>(<0.1%)<br>CAS#: 50-00-0          | Rinse Test              | Human  | 1 ppm    | 6 minutes     | Corrosive to eyes                      | RTECS |
| Diammonium sulfate<br>(<0.01%)<br>CAS#: 7783-20-2 | Standard Draize<br>Test | Rabbit | 0.050 mL | None reported | Not corrosive or<br>irritating to eyes | ECHA  |

#### **Respiratory or skin sensitization**

May cause sensitization by inhalation. May cause sensitization by skin contact.

#### **Mixture**

No data available.

#### **Ingredient Sensitization Data**

Test data reported below.

#### **Skin Sensitization Exposure Route**

| Chemical name                                                            | Test method                           | Species    | Results                               | Key literature references and sources for data |
|--------------------------------------------------------------------------|---------------------------------------|------------|---------------------------------------|------------------------------------------------|
| 1,3,5,7-Tetraazatricyclo[3.3.1.1(3,7)]decane<br>(<10%)<br>CAS#: 100-97-0 | OECD Test No. 406: Skin Sensitization | Guinea pig | Confirmed to be a skin sensitizer     | ECHA                                           |
| Sodium sulfate<br>(<1%)<br>CAS#: 7757-82-6                               | OECD Test No. 406: Skin Sensitization | Guinea pig | Not confirmed to be a skin sensitizer | HSDB                                           |
| Formaldehyde<br>(<0.1%)<br>CAS#: 50-00-0                                 | Patch test                            | Human      | Confirmed to be a skin sensitizer     | ERMA                                           |

#### **Respiratory Sensitization Exposure Route**

| Chemical name                                                            | Test method                       | Species    | Results                                  | Key literature references and sources for data |
|--------------------------------------------------------------------------|-----------------------------------|------------|------------------------------------------|------------------------------------------------|
| 1,3,5,7-Tetraazatricyclo[3.3.1.1(3,7)]decane<br>(<10%)<br>CAS#: 100-97-0 | Based on human experience         | Human      | Confirmed to be a respiratory sensitizer | HSDB                                           |
| Formaldehyde<br>(<0.1%)<br>CAS#: 50-00-0                                 | IgE Specific Immune Response Test | Guinea pig | Confirmed to be a respiratory sensitizer | CICAD                                          |

#### **STOT - single exposure**

Based on available data, the classification criteria are not met.

#### **Mixture**

No data available.

#### **Ingredient Specific Target Organ Toxicity Single Exposure Data**

Test data reported below.

#### **Oral Exposure Route**

| Chemical name                            | Endpoint type          | Reported dose | Exposure time | Toxicological effects                                   | Key literature references and sources for data |
|------------------------------------------|------------------------|---------------|---------------|---------------------------------------------------------|------------------------------------------------|
| Formaldehyde<br>(<0.1%)<br>CAS#: 50-00-0 | Human LD <sub>Lo</sub> | 70 mg/kg      | None reported | Gastrointestinal<br>Kidney, Ureter, or Bladder<br>Liver | RTECS                                          |

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|                                                   |                         |            |               |                                                     |       |
|---------------------------------------------------|-------------------------|------------|---------------|-----------------------------------------------------|-------|
|                                                   |                         |            |               | Other changes<br>Ulcerated stomach<br>Other changes |       |
| Diammonium sulfate<br>(<0.01%)<br>CAS#: 7783-20-2 | Man<br>TD <sub>Lo</sub> | 1500 mg/kg | None reported | <b>Gastrointestinal</b><br>Gas                      | RTECS |

#### **STOT - repeated exposure**

Based on available data, the classification criteria are not met.

#### **Mixture**

No data available.

#### **Ingredient Specific Target Organ Toxicity Repeat Exposure Data**

Test data reported below.

##### **Oral Exposure Route**

| Chemical name                                                         | Endpoint type | Reported dose | Exposure time | Toxicological effects | Key literature references and sources for data |
|-----------------------------------------------------------------------|---------------|---------------|---------------|-----------------------|------------------------------------------------|
| 1,3,5,7-Tetraazatricyclo[3.3.1.1(3,7)]decane (<10%)<br>CAS#: 100-97-0 | Rat<br>NOAEL  | 80 mg/kg      | None reported | None reported         | Vendor SDS                                     |

##### **Inhalation (Dust/Mist) Exposure Route**

| Chemical name                                                         | Endpoint type           | Reported dose         | Exposure time | Toxicological effects                                                                                                                                                                                                                                                    | Key literature references and sources for data |
|-----------------------------------------------------------------------|-------------------------|-----------------------|---------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------|
| 1,3,5,7-Tetraazatricyclo[3.3.1.1(3,7)]decane (<10%)<br>CAS#: 100-97-0 | Rat<br>TC <sub>Lo</sub> | 350 mg/m <sup>3</sup> | 21 days       | <b>Kidney, Ureter, or Bladder</b><br>Urine volume decreased or anuria<br><b>Nutritional and Gross Metabolic</b><br>Weight loss or decreased weight gain<br><b>Biochemical</b><br>Enzyme inhibition, induction, or change in blood or tissue levels (true cholinesterase) | RTECS                                          |

##### **Inhalation (Vapor) Exposure Route**

| Chemical name                         | Endpoint type             | Reported dose | Exposure time | Toxicological effects                                                              | Key literature references and sources for data |
|---------------------------------------|---------------------------|---------------|---------------|------------------------------------------------------------------------------------|------------------------------------------------|
| Formaldehyde (<0.1%)<br>CAS#: 50-00-0 | Human<br>TC <sub>Lo</sub> | 0.017 mg/L    | 0.5 days      | <b>Eye</b><br><b>Lungs, Thorax, or Respiration</b><br>Lacrimation<br>Other changes | RTECS                                          |

#### **Carcinogenicity**

Based on available data, the classification criteria are not met.

#### **Mixture**

No data available.

#### **Ingredient Carcinogenicity Data**

Test data reported below.

| Chemical name | CAS No. | ACGIH | IARC | NTP | OSHA |
|---------------|---------|-------|------|-----|------|
|---------------|---------|-------|------|-----|------|

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|                                              |           |    |         |       |   |
|----------------------------------------------|-----------|----|---------|-------|---|
| 1,3,5,7-Tetraazatricyclo[3.3.1.1(3,7)]decane | 100-97-0  | -  | -       | -     | - |
| Sodium sulfate                               | 7757-82-6 | -  | -       | -     | - |
| Formaldehyde                                 | 50-00-0   | A1 | Group 1 | Known | X |
| Diammonium sulfate                           | 7783-20-2 | -  | -       | -     | - |

#### Legend

|                                                                          |                                  |
|--------------------------------------------------------------------------|----------------------------------|
| <b>ACGIH (American Conference of Governmental Industrial Hygienists)</b> | A2 - Suspected Human Carcinogen  |
| <b>IARC (International Agency for Research on Cancer)</b>                | Group 1 - Carcinogenic to Humans |
| <b>NTP (National Toxicology Program)</b>                                 | Known - Known Carcinogen         |
| <b>OSHA</b>                                                              | X - Present                      |

#### Inhalation (Vapor) Exposure Route

| Chemical name                         | Endpoint type | Reported dose | Exposure time | Toxicological effects | Key literature references and sources for data |
|---------------------------------------|---------------|---------------|---------------|-----------------------|------------------------------------------------|
| Formaldehyde (<0.1%)<br>CAS#: 50-00-0 | Rat           | 15 mg/L       | 78 weeks      | Olfaction<br>Tumors   | RTECS                                          |

#### Germ cell mutagenicity

Based on available data, the classification criteria are not met.

#### Mixture *invitro* Data

No data available.

#### Substance *invitro* Data

Test data reported below.

| Chemical name                                                         | Test                 | Cell Strain     | Reported dose | Exposure time | Results                               | Key literature references and sources for data |
|-----------------------------------------------------------------------|----------------------|-----------------|---------------|---------------|---------------------------------------|------------------------------------------------|
| 1,3,5,7-Tetraazatricyclo[3.3.1.1(3,7)]decane (<10%)<br>CAS#: 100-97-0 | Cytogenetic analysis | Human HeLa Cell | 1 mmol/L      | None reported | Positive test result for mutagenicity | RTECS                                          |

#### Mixture *in vivo* Data

No data available.

#### Substance *in vivo* Data

Test data reported below.

#### Oral Exposure Route

| Chemical name                                                         | Test                 | Species | Reported dose | Exposure time | Results                               | Key literature references and sources for data |
|-----------------------------------------------------------------------|----------------------|---------|---------------|---------------|---------------------------------------|------------------------------------------------|
| 1,3,5,7-Tetraazatricyclo[3.3.1.1(3,7)]decane (<10%)<br>CAS#: 100-97-0 | Dominant lethal test | Mouse   | 25000 mg/kg   | None reported | Positive test result for mutagenicity | RTECS                                          |

#### Inhalation (Vapor) Exposure Route

| Chemical name        | Test              | Species | Reported dose | Exposure time | Results                               | Key literature references and sources for data |
|----------------------|-------------------|---------|---------------|---------------|---------------------------------------|------------------------------------------------|
| Formaldehyde (<0.1%) | Micronucleus test | Human   | .000985 mg/L  | 8.5 years     | Positive test result for mutagenicity | RTECS                                          |

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|               |  |  |  |  |  |
|---------------|--|--|--|--|--|
| CAS#: 50-00-0 |  |  |  |  |  |
|---------------|--|--|--|--|--|

#### **Reproductive toxicity**

Based on available data, the classification criteria are not met.

#### **Mixture**

No data available.

#### **Ingredient Reproductive Toxicity Data**

Test data reported below.

#### **Oral Exposure Route**

| Chemical name                              | Endpoint type             | Reported dose | Exposure time | Toxicological effects                                           | Key literature references and sources for data |
|--------------------------------------------|---------------------------|---------------|---------------|-----------------------------------------------------------------|------------------------------------------------|
| Sodium sulfate<br>(<1%)<br>CAS#: 7757-82-6 | Mouse<br>TD <sub>Lo</sub> | 14000 mg/kg   | 4 days        | <b>Effects on Newborn</b><br>Other neonatal measures or effects | RTECS                                          |

#### **Inhalation (Vapor) Exposure Route**

| Chemical name                            | Endpoint type           | Reported dose | Exposure time | Toxicological effects                                                               | Key literature references and sources for data |
|------------------------------------------|-------------------------|---------------|---------------|-------------------------------------------------------------------------------------|------------------------------------------------|
| Formaldehyde<br>(<0.1%)<br>CAS#: 50-00-0 | Rat<br>TC <sub>Lo</sub> | 40 mg/L       | 14 days       | <b>Effects on Embryo or Fetus</b><br>Fetotoxicity (except death e.g. stunted fetus) | RTECS                                          |

#### **Aspiration hazard**

Based on available data, the classification criteria are not met.

## **12. ECOLOGICAL INFORMATION**

#### **Ecotoxicity**

Based on available data, the classification criteria are not met.

#### **Unknown aquatic toxicity**

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

#### **Mixture**

#### **Aquatic Acute Toxicity**

No data available.

#### **Aquatic Chronic Toxicity**

No data available.

#### **Substance**

#### **Aquatic Acute Toxicity**

Test data reported below.

#### **Fish**

| Chemical name                              | Exposure time | Species                    | Endpoint type    | Reported dose | Key literature references and sources for data |
|--------------------------------------------|---------------|----------------------------|------------------|---------------|------------------------------------------------|
| Sodium sulfate<br>(<1%)<br>CAS#: 7757-82-6 | 96 hours      | None reported              | LC <sub>50</sub> | 56 mg/L       | IUCLID                                         |
| Formaldehyde<br>(<0.1%)<br>CAS#: 50-00-0   | 96 hours      | <i>Morone saxatilis</i>    | LC <sub>50</sub> | 6.7 mg/L      | PEEN                                           |
| Diammonium sulfate                         | 96 hours      | <i>Oncorhynchus mykiss</i> | LC <sub>50</sub> | 36.7 mg/L     | GESTIS                                         |

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|                                  |  |  |  |  |  |
|----------------------------------|--|--|--|--|--|
| ( $<0.01\%$ )<br>CAS#: 7783-20-2 |  |  |  |  |  |
|----------------------------------|--|--|--|--|--|

#### Crustacea

| Chemical name                                          | Exposure time | Species              | Endpoint type    | Reported dose | Key literature references and sources for data |
|--------------------------------------------------------|---------------|----------------------|------------------|---------------|------------------------------------------------|
| Sodium sulfate<br>( $<1\%$ )<br>CAS#: 7757-82-6        | 48 Hours      | <i>Daphnia magna</i> | EC <sub>50</sub> | 3150 mg/L     | IUCLID                                         |
| Formaldehyde<br>( $<0.1\%$ )<br>CAS#: 50-00-0          | 48 Hours      | <i>Daphnia pulex</i> | EC <sub>50</sub> | 5.8 mg/L      | PEEN                                           |
| Diammonium sulfate<br>( $<0.01\%$ )<br>CAS#: 7783-20-2 | 48 Hours      | None reported        | LC <sub>50</sub> | 14 mg/L       | GESTIS                                         |

#### Aquatic Chronic Toxicity

No data available.

#### Persistence and degradability

##### Mixture

No data available.

##### Mixture

No data available.

##### Partition coefficient

Not applicable

##### Mobility

##### Soil Organic Carbon-Water Partition Coefficient

Not applicable

##### Other adverse effects

No information available

### 13. DISPOSAL CONSIDERATIONS

#### Waste treatment methods

##### Waste from residues/unused products

Dispose of in accordance with local regulations. Dispose of waste in accordance with environmental legislation.

##### Contaminated packaging

Do not reuse empty containers.

##### US EPA Waste Number

U122

| Chemical name           | RCRA | RCRA - Basis for Listing                                      | RCRA - D Series Wastes | RCRA - U Series Wastes |
|-------------------------|------|---------------------------------------------------------------|------------------------|------------------------|
| Formaldehyde<br>50-00-0 | U122 | Included in waste streams: K009, K010, K038, K040, K156, K157 | -                      | U122                   |

### 14. TRANSPORT INFORMATION

##### DOT

Not regulated

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**TDG** Not regulated  
**IATA** Not regulated  
**IMDG** Not regulated  
**Note:** No special precautions necessary.

**Additional information**

## 15. REGULATORY INFORMATION

### **National Inventories**

*For Inventory status, "complies" means, listed on the inventory, exempted or otherwise complies.*

**TSCA** Complies  
**DSL/NDSL** Complies

**TSCA** - United States Toxic Substances Control Act Section 8(b) Inventory  
**DSL/NDSL** - Canadian Domestic Substances List/Non-Domestic Substances List

### **International Inventories**

**EINECS/ELINCS** Complies  
**ENCS** Does not comply  
**IECSC** Complies  
**KECI** Complies  
**PICCS** Does not comply  
**TCSI** Complies  
**AICS** Complies  
**NZIoC** Complies

**EINECS/ELINCS** - European Inventory of Existing Chemical Substances/European List of Notified Chemical Substances  
**ENCS** - Japan Existing and New Chemical Substances  
**IECSC** - China Inventory of Existing Chemical Substances  
**KECL** - Korean Existing and Evaluated Chemical Substances  
**PICCS** - Philippines Inventory of Chemicals and Chemical Substances  
**TCSI** - Taiwan Chemical Substances Inventory  
**AICS** - Australian Inventory of Chemical Substances  
**NZIoC** - New Zealand Inventory of Chemicals

### **US Federal Regulations**

#### **SARA 313**

Section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 (SARA). This product does not contain any chemicals which are subject to the reporting requirements of the Act and Title 40 of the Code of Federal Regulations, Part 372

| Chemical name                         | SARA 313 - Threshold Values % |
|---------------------------------------|-------------------------------|
| Formaldehyde (CAS #: 50-00-0)         | 0.1                           |
| Diammonium sulfate (CAS #: 7783-20-2) | 1.0                           |

#### **SARA 311/312 Hazard Categories**

|                                          |     |
|------------------------------------------|-----|
| <b>Acute health hazard</b>               | Yes |
| <b>Chronic Health Hazard</b>             | Yes |
| <b>Fire hazard</b>                       | No  |
| <b>Sudden release of pressure hazard</b> | No  |
| <b>Reactive Hazard</b>                   | No  |

#### **CWA (Clean Water Act)**

This product does not contain any substances regulated as pollutants pursuant to the Clean Water Act (40 CFR 122.21 and 40 CFR 122.42)

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| Chemical name           | CWA - Reportable Quantities | CWA - Toxic Pollutants | CWA - Priority Pollutants | CWA - Hazardous Substances |
|-------------------------|-----------------------------|------------------------|---------------------------|----------------------------|
| Formaldehyde<br>50-00-0 | 100 lb                      | -                      | -                         | X                          |

#### CERCLA

| Chemical name           | Hazardous Substances RQs | CERCLA/SARA RQ | Reportable Quantity (RQ)                  |
|-------------------------|--------------------------|----------------|-------------------------------------------|
| Formaldehyde<br>50-00-0 | 100 lb                   | 100 lb         | RQ 100 lb final RQ<br>RQ 45.4 kg final RQ |

#### U.S. - Department of Homeland Security - Chemical Facility Anti-Terrorism Standards (CFATS) - Security Issues

| Chemical name                            | U.S. - Department of Homeland Security - Chemical Facility Anti-Terrorism Standards (CFATS) - Security Issues |
|------------------------------------------|---------------------------------------------------------------------------------------------------------------|
| Formaldehyde<br>(<0.1%)<br>CAS#: 50-00-0 | Release - Toxic (solution)                                                                                    |

#### US State Regulations

##### California Proposition 65

This product contains the following Proposition 65 chemicals

| Chemical name                 | California Proposition 65 |
|-------------------------------|---------------------------|
| Formaldehyde (CAS #: 50-00-0) | Carcinogen                |



**WARNING:** This product can expose you to chemicals including Formaldehyde, which is known to the State of California to cause cancer.

For more information, go to <http://www.P65Warnings.ca.gov>

**IMERC:** Not applicable

##### U.S. State Right-to-Know Regulations

This product may contain substances regulated by state right-to-know regulations.

| Chemical name                                            | New Jersey | Massachusetts | Pennsylvania |
|----------------------------------------------------------|------------|---------------|--------------|
| 1,3,5,7-Tetraazatricyclo[3.3.1.1(3,7)]decane<br>100-97-0 | X          | -             | -            |
| Sodium sulfate<br>7757-82-6                              | -          | X             | X            |
| Formaldehyde<br>50-00-0                                  | X          | X             | X            |
| Diammonium sulfate<br>7783-20-2                          | -          | X             | X            |

##### U.S. EPA Label Information

| Chemical name                                | FIFRA    | FDA             |
|----------------------------------------------|----------|-----------------|
| 1,3,5,7-Tetraazatricyclo[3.3.1.1(3,7)]decane | 180.0910 | -               |
| Sodium sulfate                               | -        | 21 CFR 186.1797 |
| Diammonium sulfate                           | 180.0910 | 21 CFR 184.1143 |

## 16. OTHER INFORMATION, INCLUDING DATE OF PREPARATION OF THE LAST REVISION

### Special Comments

None

### Additional information

#### Global Automotive Declarable Substance List (GADSL)

| Chemical name                                            | Global Automotive Declarable Substance List Classifications                                                      | Global Automotive Declarable Substance List Thresholds |
|----------------------------------------------------------|------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------|
| 1,3,5,7-Tetraazatricyclo[3.3.1.1(3,7)]decane<br>100-97-0 | Declarable Substance (FI)                                                                                        | 0.1 %                                                  |
| Formaldehyde<br>50-00-0                                  | Declarable Substance (FI)<br>Declarable Substance (LR)<br>Prohibited Substance (FI)<br>Prohibited Substance (LR) | 0.1 %                                                  |

### NFPA and HMIS Classifications

| NFPA | Health hazards - 2        | Flammability - 0 | Instability - 0      | Physical and chemical properties - |
|------|---------------------------|------------------|----------------------|------------------------------------|
| HMIS | Health hazards - 2<br>- * | Flammability - 0 | Physical hazards - 0 | Personal protection -<br>X<br>- I  |

### Key or legend to abbreviations and acronyms used in the safety data sheet

|             |                                                                                             |
|-------------|---------------------------------------------------------------------------------------------|
| ACGIH       | ACGIH (American Conference of Governmental Industrial Hygienists)                           |
| ATSDR       | ATSDR (Agency for Toxic Substances and Disease Registry)                                    |
| CCRIS       | CCRIS (Chemical Carcinogenesis Research Information System)                                 |
| CDC         | CDC (Center for Disease Control)                                                            |
| CEPA        | CEPA (Canadian Environmental Protection Agency)                                             |
| CICAD       | CICAD (Concise International Chemical Assessment Documents)                                 |
| ECHA        | ECHA (The European Chemicals Agency)                                                        |
| EEA         | EEA (European Environment Agency)                                                           |
| EPA         | Environmental Protection Agency                                                             |
| ERMA        | ERMA (New Zealand's Environmental Risk Management Authority)                                |
| ECOSARS     | Estimation through ECOSARS v1.11 part of the Estimation Programs Interface (EPI) Suite™     |
| FDA         | FDA (Food & Drug Administration)                                                            |
| GESTIS      | GESTIS (Information System on Hazardous Substances of the German Social Accident Insurance) |
| HSDB        | HSDB (Hazardous Substances Data Bank)                                                       |
| INERIS      | INERIS (The National Industrial Environment and Risks Institute)                            |
| IPCS INCHEM | IPCS INCHEM (International Programme on Chemical Safety)                                    |
| IUCLID      | IUCLID (The International Uniform Chemical Information Database)                            |
| NITE        | Japan National Institute of Technology and Evaluation (NITE)                                |
| NIH         | NIH (National Institutes of Health)                                                         |
| NIOSH       | NIOSH (National Institute for Occupational Safety and Health)                               |
| LOLI        | LOLI (List of Lists - An International Chemical Regulatory Database)                        |
| NDF         | no data                                                                                     |
| NICNAS      | Australia National Industrial Chemicals Notification and Assessment Scheme (NICNAS)         |
| NIOSH IDLH  | Immediately Dangerous to Life or Health                                                     |
| OSHA        | Occupational Safety and Health Administration of the US Department of Labor                 |
| PEEN        | PEEN (Pan European Ecological Network)                                                      |
| RTECS       | RTECS (Registry of Toxic Effects of Chemical Substances)                                    |
| SIDS        | SIDS (Screening Information Dataset) for High Volume Chemicals                              |
| SYKE        | The Finnish Environment Institute (SYKE)                                                    |
| USDA        | USDA (United States Department of Agriculture)                                              |
| USDC        | USDC (United States Department of Commerce)                                                 |
| WHO         | WHO (World Health Organization)                                                             |

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**Legend - Section 8: EXPOSURE CONTROLS/PERSONAL PROTECTION**

|      |                                 |         |                                                                                                                                                                                                                                                                                       |
|------|---------------------------------|---------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| TWA  | TWA (time-weighted average)     | STEL    | STEL (Short Term Exposure Limit)                                                                                                                                                                                                                                                      |
| MAC  | Maximum Allowable Concentration | Ceiling | Ceiling Limit Value                                                                                                                                                                                                                                                                   |
| X    | Listed                          | Vacated | These values have no official status. The only binding levels of contaminants are those listed in the final OSHA PEL. These lists are for reference purposes only. Please note that some reference state regulations of these "liberated" exposure limits in their state regulations. |
| SKN* | Skin designation                | SKN+    | Skin sensitization                                                                                                                                                                                                                                                                    |
| RSP+ | Respiratory sensitization       | **      | Hazard Designation                                                                                                                                                                                                                                                                    |
| C    | Carcinogen                      | R       | Reproductive toxicant                                                                                                                                                                                                                                                                 |
| M    | mutagen                         |         |                                                                                                                                                                                                                                                                                       |

**Prepared By** Hach Product Compliance Department

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**Revision Note** None

**Disclaimer**

**USER RESPONSIBILITY:** Each user should read and understand this information and incorporate it in individual site safety programs in accordance with applicable hazard communication standards and regulations.

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**End of Safety Data Sheet**