Neutral Buffered Formalin Concentrate (4+1)

Manufactured in the USA for
Avantik
A Business Unit of Belair Instrument Co.
32 Commerce Street
Springfield, NJ 07081

Phone: (800) 783-9424 24-Hour Emergency Telephone
Fax: (973) 232-0076
Web: www.avantik-us.com

Product Name: Neutral Buffered Formalin Concentrate (4+1)
Revision Date: 2/27/2013
Product Code: RS4253
Product Use: For preparation of 10% Buffered Formalin Fixative

Target Organs: Respiratory system, Eyes, Skin, Central nervous system (CNS), Optic nerve, Liver, Kidney
Inhalation: Harmful by inhalation. Irritant. May affect CNS.
Skin Contact: Irritant. May cause allergic reaction.
Eye Contact: Irritant
Ingestion: Harmful if swallowed. Can cause GI irritation, nausea, vomiting. May affect CNS.

GHS Classifications:
Physical, Flammable Liquids, 4
Health, Acute toxicity, 4 Oral
Health, Acute toxicity, 4 Dermal
Health, Acute toxicity, 4 Inhalation
Health, Carcinogenicity, 1
Health, Reproductive toxicity, 2
Health, Respiratory or skin sensitization, 1 Respiratory
Health, Respiratory or skin sensitization, 1 Skin
Health, Serious Eye Damage/Eye Irritation, 2 B
Health, Skin corrosion/Irritation, 2
Health, Specific target organ toxicity - Repeated exposure, 2

GHS Phrases:
Warning, Combustible liquid
Warning, Harmful if swallowed
Warning, Harmful in contact with skin
Warning, Harmful if inhaled
GHS Precautionary Statements:

- P210 - Keep away from heat/sparks/open flames/hot surfaces. No smoking
- P280 - Wear protective gloves/protective clothing/eye protection/face protection.
- P261 - Avoid breathing vapors/spray.
- P270 - Use only in a well-ventilated area.
- P233 - Keep container tightly closed.
- P264 - Wash thoroughly after handling.
- P273 - Avoid release to the environment.
- P301+310 - IF SWALLOWED: Immediately call a POISON CENTER or doctor/physician.
- P304+341 - IF INHALED: If breathing is difficult, remove victim to fresh air and keep at rest in a position comfortable for breathing.
- P312 - Call a POISON CENTER or doctor/physician if you feel unwell.
- P305+351+338 - IF IN EYES: Rinse continuously with water for several minutes. Remove contact lenses if present and easy to do. Continue rinsing.
- P302+350 - IF ON SKIN: Gently wash with soap and water. If skin irritation occurs: Get medical advice/attention. Wash contaminated clothing before reuse.
- P332+313 - If skin irritation occurs: Get medical advice/attention.

3 COMPOSITION/INFORMATION ON INGREDIENTS

<table>
<thead>
<tr>
<th>Cas #</th>
<th>Percentage</th>
<th>Chemical Name</th>
</tr>
</thead>
<tbody>
<tr>
<td>50-00-0</td>
<td>18-21%</td>
<td>Formaldehyde</td>
</tr>
<tr>
<td>67-56-1</td>
<td>5-6%</td>
<td>Methanol</td>
</tr>
</tbody>
</table>

This list includes only hazardous components.

4 FIRST AID MEASURES

Inhalation: If breathing is difficult, remove victim to fresh air and keep at rest in a position comfortable for breathing. Call a Poison Center or physician.

Skin Contact: Remove/Take off immediately all contaminated clothing. Wash with soap and water. If skin irritation occurs: Get medical advice/attention. Wash contaminated clothing before reuse.

Eye Contact: Rinse continuously with water for several minutes. Remove contact lenses if present and easy to do. Continue rinsing. Call a POISON CENTER or doctor/physician.

Ingestion: Immediately call a POISON CENTER or doctor/physician.

5 FIRE FIGHTING MEASURES

Flammability: No data available
Flash Point: 73.3C
Flash Point Method: No information available
NFPA Hazard Identification:  Health: 3  Flammability: 2  Reactivity: 0  Special Hazards: n/a

NFPA Hazard Identification is not intended to address occupational exposure occurring under normal conditions of use. It only addresses hazards presented by Fire, Spill or Similar Emergencies. NFPA 704 2007 ed. 1.1 and 1.3.2(1).

P370+P378 In case of fire: Use water spray, alcohol-resistant foam, dry chemical or CO2 for extinction. Firefighters should wear NIOSH approved self-contained positive pressure breathing apparatus and full protective gear. Thermal decomposition can lead to release of irritating gases and vapors.

6  ACCIDENTAL RELEASE MEASURES

Ventilate area and keep unnecessary personnel away. Wear personal protective clothing and suitable breathing apparatus. Eliminate sources of ignition. Keep spill out of drains. Absorb with inert material and containerize for disposal. Clean up residual spill with water.

7  HANDLING AND STORAGE

Handling Precautions: P271 P280 P260 P210 Use only in a well-ventilated area. Wear protective gloves/protective clothing/eye protection/face protection. Do not breathe vapors. Keep away from heat/open flames. No smoking

Storage Requirements: P404+411+233 Store in a well ventilated place at temperatures not exceeding 25C. Keep container tightly closed.

8  EXPOSURE CONTROLS/PERSONAL PROTECTION

Engineering Controls: All ventilation should be designed in accordance with OSHA standard (29 CFR 1910.94).

P280 P271 Wear protective gloves/protective clothing/eye protection/face protection. Use only in a well-ventilated area. Use mechanical ventilation for storage areas.

Personal Protective Equip: Acid/Chemical cartridge respirator
Apron
Chemical splash goggles
Face shield
Nitrile gloves
Exhaust ventilation

Exposure Guidelines:

<table>
<thead>
<tr>
<th></th>
<th>PEL</th>
<th>TLV</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Formaldehyde</td>
<td>0.75ppm TWA</td>
</tr>
<tr>
<td></td>
<td>Methanol</td>
<td>200ppm TWA</td>
</tr>
</tbody>
</table>

Formaldehyde 0.75ppm TWA 2ppm STEL See 29CFR1900.1048(c)
Methanol 200ppm TWA

Neutral Buffered Formalin Concentrate (4+1)

SDS Safety Data Sheet

Product Code: RS4253
Revision Date: 2-27-13

Page 3 of 6
# Neutral Buffered Formalin Concentrate (4+1)

**Safety Data Sheet**

**Product Code:** RS4253  
**Revision Date:** 2-27-13

## PHYSICAL AND CHEMICAL PROPERTIES

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Odor Threshold:</strong></td>
<td>Formaldehyde</td>
</tr>
<tr>
<td><strong>Spec Grav./Density:</strong></td>
<td>1.089 SG</td>
</tr>
<tr>
<td><strong>Sat. Vap. Concentr.</strong></td>
<td>No information</td>
</tr>
<tr>
<td><strong>Boiling Point:</strong></td>
<td>101°C</td>
</tr>
<tr>
<td><strong>Vapor Pressure:</strong></td>
<td>No information</td>
</tr>
<tr>
<td><strong>pH:</strong></td>
<td>6.83</td>
</tr>
<tr>
<td><strong>Evap. Rate:</strong></td>
<td>No information</td>
</tr>
<tr>
<td><strong>Decomp Temp:</strong></td>
<td>No information</td>
</tr>
<tr>
<td><strong>Odor:</strong></td>
<td>Formaldehyde</td>
</tr>
<tr>
<td><strong>Molecular Formula:</strong></td>
<td>Does not apply</td>
</tr>
<tr>
<td><strong>Solubility:</strong></td>
<td>Miscible</td>
</tr>
<tr>
<td><strong>Percent Volatile:</strong></td>
<td>No information</td>
</tr>
<tr>
<td><strong>Freezing/Melting Pt.:</strong></td>
<td>0°C</td>
</tr>
<tr>
<td><strong>Flash Point:</strong></td>
<td>73°C</td>
</tr>
<tr>
<td><strong>Vapor Density:</strong></td>
<td>&gt;1</td>
</tr>
<tr>
<td><strong>VOC:</strong></td>
<td>No information</td>
</tr>
<tr>
<td><strong>Auto-Ignition Temp:</strong></td>
<td>No information</td>
</tr>
<tr>
<td><strong>UFL/LFL:</strong></td>
<td>No information</td>
</tr>
</tbody>
</table>

## STABILITY AND REACTIVITY

- **Stability:** Product is stable under normal conditions.
- **Conditions to Avoid:** Sources of ignition. Excessive heat or cold.
- **Materials to Avoid:** Strong acids and strong oxidizers. Bases.
- **Hazardous Decomposition:** Carbon oxides. Formaldehyde and Methanol vapor.
- **Hazardous Polymerization:** Will not occur.

## TOXICOLOGICAL INFORMATION

The Acute Toxicity properties of this mixture have not been established.

- Causes skin, eye and respiratory tract irritation.
- Harmful if swallowed inhaled or absorbed through skin.
- May cause skin or respiratory tract allergic reaction or other respiratory symptoms.

**Formaldehyde**

- Oral rat LD50: 100 mg/kg; skin rabbit LD50: 270 uL/kg
- Irritation data: eye, rabbit, 750ug Severe; inhalation rat LC50: 203 mg/m3; investigated as a tumorigen, mutagen, reproductive effector.

**Methanol**

- Oral rat LD50: 5628 mg/kg; inhalation rat LC50: 64000ppm/4H; skin rabbit LD50: 15800 mg/kg; investigated as a tumorigen, mutagen, reproductive effector.

**Carcinogenicity:**

- NTP-R  Formaldehyde is known to be a human carcinogen.
- IARC-1 Carcinogenic to humans.
- OSHA-Ca Carcinogen defined with no further categorization.
ECOLOGICAL INFORMATION

Ecotoxicity: No information available
Persistence and degradability: No information available
Bioaccumulative potential: No information available
Mobility in soil: No information available

DISPOSAL CONSIDERATIONS

Dispose of in accordance with all applicable federal, state and local environmental regulations.

TRANSPORT INFORMATION

DOT
Class 9
NA3082
Other regulated substances, liquid, n.o.s. (formaldehyde solution, 20%)

IATA
Class 9
UN3334
Aviation Regulated Liquid, n.o.s. (formaldehyde solution, 20%)

NOTE: The information contained in this section may not be applicable for all package sizes or methods of transport. It is the shipper's responsibility to ensure that all applicable classification, packaging, labeling and documentation requirements are met.
**REGULATORY INFORMATION**

COMPONENT / (CAS/PERC) / CODES

*Formaldehyde (50000 18-21%) CERCLA, CSWHS, EHS302, EPCRAWPC, HAP, MASS, NJEHS, NJHS, NRC, OSHAHTS, OSHAPSM, PA, PROP65, SARA313, TOXICRCRA, TSCA, TXAIR, TXHWL

*Methanol (67561 5-6%) CERCLA, HAP, MASS, NJHS, OSHAWAC, PA, SARA313, TOXICRCRA, TSCA, TXAIR, TXHWL

**REGULATORY KEY DESCRIPTIONS**

CERCLA = Superfund clean up substance
CSWHS = Clean Water Act Hazardous substances
EHS302 = Extremely Hazardous Substance
EPCRAWPC = EPCRA Water Priority Chemicals
HAP = Hazardous Air Pollutants
MASS = MA Massachusetts Hazardous Substances List
NJEHS = NJ Extraordinarily Hazardous Substances
NJHS = NJ Right-to-Know Hazardous Substances
NRC = Nationally Recognized Carcinogens
OSHAHTS = OSHA Hazardous and Toxic Substances
OSHAWAC = OSHA Workplace Air Contaminants
OSHAPSM = OSHA Chemicals Requiring process safety management
PA = PA Right-To-Know List of Hazardous Substances
PROP65 = CA Prop 65
SARA313 = SARA 313 Title III Toxic Chemicals
TOXICRCRA = RCRA Toxic Hazardous Wastes (U-List)
TSCA = Toxic Substances Control Act
TXAIR = TX Air Contaminants with Health Effects Screening Level
TXHWL = TX Hazardous Waste List

**OTHER INFORMATION**

**Disclaimer:**
Avantik Biogroup makes no representation as to the comprehensiveness or accuracy of this information. Individuals using this information, or the product to which it refers, must exercise their independent judgment in determining all appropriateness for a particular purpose. Accordingly, Avantik Biogroup will not be responsible for damages of any kind or nature resulting from the use of this information or the corresponding product. No representations or warranties of any kind or nature, including but not limited to: express warranties, implied warranties or merchantability, or warranties of fitness for a particular purpose, are made hereunder with respect to the information set forth herein or to the product to which the information refers.