

Product Name: Flow Cytometry Fixation Buffer (1X)

Reviewed on: 28 August 2018

## 1. Identification of Substance:

- **Other means of identification: Catalog Number:** FC004
- **GHS product identifier:** Flow Cytometry Fixation Buffer (1X)
- **Application of the substance / the preparation:** For Research Use Only
  - **Manufacturer/Supplier:**

Bio-Techne - R&D Systems Inc.	Canada	United Kingdom
614 McKinley Place N.E.	461 North Service Rd West	19 Barton Lane
Minneapolis, MN 55413 USA	Unit B37	Abingdon Science Park
Telephone: 1-800-343-7475	Oakville, ON L6M 2V5	Abingdon, OX14 3NB
Internet: www.rndsystems.com	Phone: 1-855-668-8722	Phone: 44 (0)1235 529449
Email: info@bio-techne.com	Email: Canada.inquiries@bio-techne.com	Email: Info.emea@bio-techne.com
- **For product related questions call:** 1-800-343-7475 or 1-612-379-2956, In Europe call: +44(0)1235-529449.
- **Emergency information:** In case of a chemical emergency, spill, leak, fire, or accident, call CHEMTREC at 1-800-424-9300 (USA or Canada). Outside USA or Canada: +1 703-527-3887 (collect calls accepted).

## 2. Hazard Identification:

- **Classification: Regulation (EC) No. 1272/2008 (CLP/EU-GHS), 29 CFR 1910.1200 (OSHA): FORMALDEHYDE SOLUTION, Non-Stabilized**

**Carcinogen, 1B**  
**Mutagen, 2**  
**Skin Sensitization, 1**  
**Signal Word: DANGER**



- **Hazard Statements:** H350: May cause cancer by inhalation. H317: May cause an allergic reaction. H341: Suspected of causing genetic defects.
- **Precautionary Statements:** P280: Wear protective gloves/protective clothing/eye protection/face protection. P261: Avoid breathing dust/fume/gas/mist/ vapours/spray. P272: Contaminated work clothing should not be allowed out of the workplace. P201: Obtain special instructions before use. P281: Use personal protective equipment as required. P202: Do not handle until all safety precautions have been read and understood.
- **Responses:**
  - IF SWALLOWED: Immediately call a Poison Control Center or physician. See specific treatment in this MSDS. Rinse mouth. Do NOT induce vomiting.
  - IF ON SKIN: Wash with plenty of soap and water. Call a POISON CENTER or doctor/physician if you feel unwell. See specific treatment in this MSDS. Remove/take off immediately all contaminated clothing. Wash contaminated clothing before reuse. If skin irritation or rash occurs: Get medical advice/attention.
  - IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing. Immediately Call a POISON CENTER or doctor/physician. See specific treatment in this MSDS.
  - IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. If eye irritation persists: Get medical advice/attention.
- **Classification according to EU Directives 67/548/EEC or 1999/45/EC:** Xn: Harmful. Xi: Irritant.
- **R-phrases:** R20/21/22: Harmful by inhalation, in contact with skin and if swallowed. R36/37/38: Irritating to eyes, respiratory system and skin. R68/20/21/22: Harmful: possible risk of irreversible effect through inhalation, in contact with skin and if swallowed.
- **S-phrases:** S36/37/39: Wear suitable protective clothing, gloves, and eye/face protection. S45: In case of accident or if you feel unwell, seek medical advice immediately (show label if possible). S51: Use only in well-ventilated areas.

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- **Special Hazards:** none.

### 3. Information on Ingredients:

- **Description:** Formaldehyde **Synonyms:** Formalin **Formula:** CH<sub>2</sub>O

Contains	CAS No.	EC-No.	Index-No.	Content
Formaldehyde	50-00-0	200-001-8	NA	≤4%
Methanol	67-56-1	200-659-6	NA	≤1.5%

### 4. First Aid Measures:

- **After inhalation:** Move person into fresh air. If not breathing, give artificial respiration. Consult a physician. Show this MSDS.
- **After skin contact:** Wash off with soap and plenty of water. Take victim immediately to a hospital. Consult a physician. Show this MSDS.
- **After eye contact:** Rinse thoroughly with plenty of water for at least 15 minutes and consult a physician. Show this MSDS.
- **After swallowing:** Do NOT induce vomiting. Never give anything by mouth to an unconscious person. Rinse mouth with water. Call a physician. Show this MSDS.
- **Most important symptoms and effects, both acute and delayed:** Unknown
- **Indication of any immediate medical attention and special treatment needed:** no data available

### 5. Fire Fighting Measures:

- **Suitable extinguishing agents:** Dry chemical, carbon dioxide, water spray or alcohol-resistant foam.
- **Special hazards arising from the substance or mixture:** Emits toxic fumes under fire conditions. Carbon oxides.
- **Protective equipment:** Wear self-contained breathing apparatus and protective clothing to prevent contact with skin and eyes.
- **Further information:** Use water spray to cool unopened containers.

### 6. Accidental Release Measures:

- **Personal precautions, protective equipment and emergency procedures:** Wear respiratory protection. Avoid breathing vapors, mist or gas. Ensure adequate ventilation. Remove all sources of ignition. Evacuate all personnel to safe areas. Beware of vapors accumulating to form explosive concentrations. Vapors can accumulate in low areas.
- **Environmental precautions:** Prevent further leakage or spillage if safe to do so. Do not let product enter drains. Discharge into the environment must be avoided.
- **Methods and materials for containment and cleaning up:** Contain spillage, and then collect with an electrically protected vacuum cleaner or by wet-brushing and place in container for disposal according to local regulations.

### 7. Handling and Storage:

- **Precautions for safe handling:** Avoid contact with skin and eyes. Avoid inhalation of vapor or mist. Keep away from sources of ignition – No Smoking. Take measures to prevent the buildup of electrostatic charge.
- **Conditions for safe storage, including incompatibilities:** Store locked up. Store in a cool place. Keep container tightly closed in a dry and well ventilated place.

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## 8. Exposure Controls and Personal Protection:

- Control parameters:

**Component:** Formaldehyde: UK EH40 WEL Workplace Exposure Limits: STEL 2 ppm, 2.5 mg/m<sup>3</sup>. TWA 2 ppm, 2.5 mg/m<sup>3</sup>. NIOSH REL: STEL 0.1 ppm, 0.12 mg/m<sup>3</sup>. TWA 0.016 ppm, 0.02 mg/m<sup>3</sup>.

**Component:** Methanol: UK EH40 WEL Workplace Exposure Limits: STEL 250 ppm, 333 mg/m<sup>3</sup>. TWA 200 ppm, 266 mg/m<sup>3</sup>. NIOSH REL: STEL 250 ppm, 325 mg/m<sup>3</sup>. TWA 200 ppm, 260 mg/m<sup>3</sup>.

- Appropriate engineering controls:** Wear protective gloves/protective clothing/eye protection/face protection. Avoid contact with skin, eyes and clothing. Wash hands before breaks and immediately after handling product.
- Personal Protective Equipment:**
- Eye and Face Protection:** Tightly fitting safety goggles. Face shield (8-inch minimum).
- 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. Wash and dry hands.
- Body Protection:** Complete suit protection against chemicals, flame retardant antistatic protective clothing, the type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace.
- Respiratory Protection:** Where risk assessment shows air-purifying respirators are appropriate use full-face respirator.

## 9. Physical and Chemical Properties:

- Appearance:** Colorless Liquid.
- Odor:** Pungent
- Odor threshold:** Not available
- pH:** Not available
- Melting point/freezing point:** Not available
- Boiling point/Boiling range:** 189° C
- Flash point:** Not available
- Evaporation rate:** Not available
- Flammability (solid, gas):** Not available
- Upper/lower flammability or explosive limits:** Not available
- Vapor density:** Not available
- Vapor pressure:** Not available
- Relative density:** Not available
- Solubility in/Miscibility with Water:** Soluble
- Partition coefficient:** Not available
- Auto igniting:** Not available
- Decomposition temperature:** Not available
- Viscosity:** Not available

## 10. Stability and Reactivity:

- Reactivity:** Strong oxidizers, alkalis and acids, phenols, urea, strong oxidizers.
- Chemical Stability:** Contains the following stabilizer: (Methanol ≤1.5%).
- Possibility of hazardous reactions:** no data available.
- Conditions to avoid:** Heat, flames.
- Incompatible materials:** Strong oxidizers, alkalis and acids, phenols, urea, strong oxidizers.
- Hazardous decomposition products:** no data available.

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## 11. Toxicological Information:

- **Acute toxicity:**  
Formaldehyde: rat oral – LD50 = 800 mg/kg; mouse oral – LD50 = 42 mg/kg; rat inhalation – LCLo = 250 mg/kg; mouse inhalation – LCLo = 900 mg/kg. Methanol: rat oral – LD50 = 6200 mg/kg; mouse oral – LD50 = 400 mg/kg
- **Skin corrosion/irritation:**  
Formaldehyde: no data available Methanol: rabbit dermal – 16 g/kg.
- **Serious eye damage/irritation:** no data available.
- **Respiratory or skin sensitization:** Formaldehyde is a skin irritant and a sensitizer. Contact will cause white discoloration, smarting, drying, cracking, and scaling.
- **Germ cell mutagenicity:** no data available.
- **Carcinogenicity:** Formaldehyde has the potential to cause cancer in humans (IARC). Repeated and prolonged exposure increases the risk. Methanol – no data available.
- **Reproductive toxicity:** no data available.
- **Specific target organ toxicity (STOT) -single exposure:** Formaldehyde - no data available. Methanol – acute intoxication causes CNS depression as observed by narcosis, in coordination, lethargy, drowsiness and prostration. A latent period follows the initial intoxication in which formic acid accumulates in the body causing metabolic acidosis.
- **Specific target organ toxicity (STOT) -repeated exposure:** Formaldehyde – prolonged exposure may cause respiratory impairment. Methanol – no data available.
- **Aspiration hazard:** No data available
- **Information on likely routes of exposure:** Routes of entry anticipated; oral, dermal, inhalation.
- **Symptoms related to the physical, chemical and toxicological characteristics:**
  - Inhalation:** Formaldehyde – irritating to respiratory tract and eyes. Methanol – causes conjunctivitis, headache, giddiness, insomnia, gastric disturbances, and bilateral blindness.
  - Ingestion:** Formaldehyde – causes severe irritation and inflammation of the mouth, throat, and stomach. Methanol – Causes acute intoxication followed by a latent period of metabolic acidosis and severe abdominal, leg and back pain, followed by blindness.
  - Skin contact:** Formaldehyde – severe skin irritant and skin sensitizer. Methanol – no data available.
  - Eye contact:** **Formaldehyde** – causes injuries ranging from transient discomfort to severe, permanent corneal clouding and loss of vision. Methanol - Causes serious eye irritation which can lead to blindness.
- **Delayed and immediate effects and also chronic effects from short and long term exposure:** Formaldehyde – the perception of formaldehyde by odor and eye irritation becomes less sensitive with time as on adapts. This desensitization can lead to overexposure. Methanol – Acute intoxication is manifested by signs of narcosis. This is followed by formic acid accumulation in the body causing metabolic acidosis. Severe abdominal pain and severe abdominal, leg and back pain, followed by blindness.

## 12. Ecological Information:

- **Ecotoxicity:** Formaldehyde - No data available. Methanol – low acute toxicity to aquatic organisms. LD50 > 100 mg/L
- **Biodegradability:** Formaldehyde - No data available. Methanol – reacts with nitrogen dioxide in polluted atmospheres to product methyl nitrite. It is a volatile organic substance.
- **Bioaccumulative potential:** Formaldehyde - No data available. Methanol -
- **Mobility in soil:** Formaldehyde - No data available. Methanol – no data available.
  - **Other adverse effects:** Formaldehyde - No data available. Methanol – As a volatile organic compound, it can contribute to the formation of photochemical smog in the presences of other volatile organic compounds.

## 13. Disposal Considerations:

- **Disposal methods:** Dispose of waste in accordance to applicable national, regional, or local regulations. Contact a licensed professional waste disposal service to dispose of this material.

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- **Contaminated packaging:** Dispose in the same manner as unused product.

#### 14. Transportation Information:

##### ADR/RID ADN/ADNR IMDG IATA/DOT

<b>ADR/DOT:</b>	<b>UN Number:</b>	UN 3334
<b>RID</b>	<b>Proper Shipping Name:</b>	Aviation regulated liquid, n.o.s. (Formaldehyde solution <25%)
	<b>Hazard class:</b>	9
	<b>Packing group:</b>	III
<b>IATA:</b>	<b>UN Number:</b>	UN 3334
	<b>Proper Shipping Name:</b>	Aviation regulated liquid, n.o.s. (Formaldehyde solution <25%)
	<b>Hazard class:</b>	9
	<b>Packing group:</b>	III
<b>IMDG:</b>	<b>UN Number:</b>	UN 3334
	<b>Proper Shipping Name:</b>	Aviation regulated liquid, n.o.s. (Formaldehyde solution <25%)
	<b>Hazard class:</b>	3
	<b>Packing group:</b>	III
	<b>Marine Pollutant:</b>	No

#### 15. Regulations:

- **US Federal and State Regulations**
- **CERCLA/SARA 302:** Formaldehyde is listed. Methanol is not listed.
- **CERCLA/SARA 304:** Formaldehyde is listed. Methanol is not listed.
- **SARA 313:** Formaldehyde is listed. Methanol is listed.
- **TSCA (Toxic Substances Control Act):** Formaldehyde is listed. Methanol is listed.
- **California Proposition 65:**  **WARNING:** This product can expose you to chemicals including formaldehyde, which is known to the State of California to cause cancer, and methanol, which is known to the State of California to cause reproductive toxicity with developmental effects. For more information, go to [www.P65Warnings.ca.gov](http://www.P65Warnings.ca.gov).

#### 16. Other Information:

- **Notice to reader:** To the best of our knowledge, the information contained herein is accurate. However, neither the above-named supplier, nor any of its subsidiaries, assumes any liability whatsoever for the accuracy or completeness of the information contained herein. Final determination of suitability of any material is the sole responsibility of the user. All materials may present unknown hazards and should be used with caution. Although certain hazards are described herein, we cannot guarantee that these are the only hazards that exist.