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

1.1. Product identifiers:

(a) Product name: Carnoy's Fluid
(b) Product Number: not applicable
(c) Brand: not applicable
(d) Index-No.: not applicable
(e) REACH No.: not applicable
(f) CAS-No.: not applicable

1.2. Relevant identified uses of the substance or mixture and uses advised against:

Tissue Fixative

1.3. Details of the supplier of the safety data sheet:

Rutland Biodynamics Ltd, Town Park Farm, Brooke, Rutland, LE158DG.

1.4. Emergency telephone number:

+44(0) 1572 757440

SECTION 2: Hazards identification

2.1. Classification of the substance or mixture:

GHS02 Flame

Flam. Liq. 2 H225 Highly flammable liquid and vapour.

GHS08 Health hazard

Carc. 2 H351 Suspected of causing cancer.
STOT RE 2 H373 May cause damage to organs through prolonged or repeated exposure.
GHS07

Skin Irrit. 2  H315 Causes skin irritation.
H319 Causes serious eye irritation.

Acute Tox. 5  H303 May be harmful if swallowed.

2.2. Classification according to Directive 67/548/EEC or Directive 1999/45/EC

Xn; Harmful


Xi; Irritant

R36/38: Irritating to eyes and skin.

F; Highly flammable

R11: Highly flammable.

(a) Information concerning particular hazards for human and environment: The product has to be labelled due to the calculation procedure of international guidelines.
(b) Classification system: The classification was made according to the latest editions of international substances lists, and expanded upon from Company and literature data.

2.3. Label elements:

Hazard pictograms

GHS02  GHS07  GHS08
Safety Data Sheet

(a) Hazards statements:

- Highly flammable liquid and vapour.
- May be harmful if swallowed.
- Causes skin irritation.
- Causes serious eye irritation.
- Suspected of causing cancer.
- May cause damage to organs through prolonged or repeated exposure.

(b) Precautionary statements

- If medical advice is needed, have product container or label at hand.
- Keep out of reach of children.
- Read label before use.
- Keep away from heat/sparks/open flames/hot surfaces. - No smoking.
- Use explosion-proof electrical/ventilating/lighting/equipment.
- IF ON SKIN (or hair): Remove/Take off immediately all contaminated clothing. Rinse skin with water/shower.
- IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do.
- Continue rinsing.
- Store locked up.
- Dispose of contents/container in accordance with local/regional/national/international regulations.

(c) Classification system:

- NFPA ratings (scale 0 – 4)
  Health = 3
  Fire = 3
  Reactivity = 0
- HMIS-ratings (scale 0 – 4)
  Health = 3
  Fire = 3
  Reactivity = 0
- Other hazards
  Results of PBT and vPvB assessment
  PBT: Not applicable.

SECTION 3: Composition / information on ingredients

3.1. Substances Synonyms:

no data available

3.2. Chemical Description:
Mixture of the substances listed below with nonhazardous additions

3.3. **Ingredients:**

(a) Ethanol (<65%), Trichloromethane (<30%), Acetic acid (<15%).

**SECTION 4: First aid measures**

4.1. **General information:**

Symptoms of poisoning may even occur after several hours; therefore medical observation for at least 48 hours after the accident. When in doubt or if symptoms are observed, get medical advice. If unconscious place in recovery position and seek medical advice. Never give anything by mouth to an unconscious person or a person with cramps. Change contaminated, saturated clothing. Do not leave affected person unattended.

(a) **After inhalation:**

In case of unconsciousness place patient stably in side position for transportation. Remove casualty to fresh air and keep warm and at rest. If breathing is irregular or stopped, administer artificial respiration. In case of respiratory tract irritation, consult a physician.

(b) **After eye contact:**

In case of contact with eyes flush immediately with plenty of flowing water for 10 to 15 minutes holding eyelids apart and consult an ophthalmologist. Protect uninjured eye. Remove contact lenses, if present and easy to do. Continue rinsing.

(c) **In case of Skin contact:**

Remove contaminated clothing wash the affected area thoroughly with soap and water. If discomfort persists seek medical attention.

(d) **In case of Ingestion:**

(e) Immediately call a doctor. DO NOT INDUCE VOMITING. In case of spontaneous vomiting, ensure vomit can drain freely to prevent danger of suffocation. Never give anything by mouth to an unconscious person. If there is difficulty in breathing give oxygen. If breathing stops or shows signs of failing, apply artificial respiration. Obtain medical attention should symptoms persist.

4.2. **Most important symptoms and effects, both acute and delayed:**

No data available

4.3. **Indication of any immediate medical attention and special treatment needed:**

No data available
4.4. **Self-protection of the first aider:**

First aider: Pay attention to self-protection!

4.5. **Information to physician:**

No data available

### SECTION 5: Firefighting measures

5.1. **Extinguishing media:**

(a) **Suitable extinguishing media:**

CO2, sand, extinguishing powder. Do not use water.

(b) **Extinguishing media which must not be used for safety reasons:**

Water

5.2. **Special hazards arising from the substance or mixture:**

In case of fire may be liberated: Carbon dioxide (CO2) Carbon monoxide

5.3. **Advice for firefighters:**

DO NOT fight fire when fire reaches explosives. In case of fire: Wear self-contained breathing apparatus.

5.4. **Additional information:**

Do not allow run-off from fire-fighting to enter drains or water courses. Do not inhale explosion and combustion gases. Use caution when applying carbon dioxide in confined spaces. Carbon dioxide can displace oxygen.

### SECTION 6: Accidental release measures

6.1. **Personal precautions, protective equipment and emergency procedures:**


6.2. **Environmental precautions:**

Do not allow product to reach sewage system or any water course.

Inform respective authorities in case of seepage into water course or sewage system.

Dilute with plenty of water.
Do not allow to enter sewers/ surface or ground water.

6.3. **Methods and materials for containment and cleaning up:**

Absorb with liquid-binding material (sand, diatomite, acid binders, universal binders, sawdust).

Dispose contaminated material as waste according to item 13.

Ensure adequate ventilation.

Do not flush with water or aqueous cleansing age

6.4. **Additional information:**

No data available

**SECTION 7: Handling and storage**

7.1. **Precautions for safe handling:**

(a) Product should be handled according to good industrial practice. Use in well ventilated area avoid inhaling vapour. Prevent formation of aerosols. Avoid contact with eyes, skin, and clothing. Keeping container tightly closed when not in use. Keep away from sources of ignition. No smoking. Usual measures for fire prevention.

7.2. **Conditions for safe storage:**

(a) **storage temperature:**

Store in a cool location

(b) **storage area:**

should be cool, well ventilated. Store away from sources of heat and ignition. Storage and transfer should be adequately earthed and bounded to the accumulation of static charge

7.3. **Specific end use(s):**

No further relevant information available.

**SECTION 8: Exposure controls/personal protection**

8.1. **Control parameters:**

(a) 64-17-5 ethanol

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>PEL</td>
<td>1900 mg/m³, 1000 ppm</td>
</tr>
<tr>
<td>REL</td>
<td>1900 mg/m³, 1000 ppm</td>
</tr>
<tr>
<td>TLV</td>
<td>Short-term value: 1880 mg/m³, 1000 ppm</td>
</tr>
</tbody>
</table>
(b) 67-66-3 trichloromethane

PEL  Short-term value: C 240 mg/m³, C 50 ppm
REL  Short-term value: 9.78* mg/m³, 2* ppm
     *60-min; See Pocket Guide App.
TLV  49 mg/m³, 10 ppm

(c) 64-19-7 acetic acid

PEL  25 mg/m³, 10 ppm
REL  Short-term value: 37 mg/m³, 15 ppm
     Long-term value: 25 mg/m³, 10 ppm
TLV  Short-term value: 37 mg/m³, 15 ppm
     Long-term value: 25 mg/m³, 10 ppm

8.2. Exposure controls:

(a) Appropriate engineering controls:

Technical measures and the application of suitable work processes have priority over personal protection equipment

(b) Personal protection equipment:

• Wear suitable protective clothing. When handling with chemical substances, protective clothing with CE-labels including the four control digits must be worn. For the protection against direct skin contact, body protective clothing is essential (in addition to the usual working clothes).

• Eye protection: Tightly sealed goggles

• Breathing equipment: In case of brief exposure or low pollution use respiratory filter device. In case of intensive or longer exposure use respiratory protective device that is independent of circulating air.

• Protection of hands: Protective gloves The glove material has to be impermeable and resistant to the product/ the substance/ the preparation. Due to missing tests no recommendation to the glove material can be given for the product/ the preparation/ the chemical mixture. Selection of the glove material on consideration of the penetration times, rates of diffusion and the degradation

(c) Environmental exposure controls:

no data available

SECTION 9: Physical and chemical properties
9.1. Information on basic physical and chemical properties:

(a) Appearance: Colorless fluid

(b) Odour: Phenol-like

(c) Odour Threshold: no data available

(d) PH: no data available

(e) Melting point/freezing point Melting point/range: no data available

(f) Initial boiling point and boiling range: 62°C (144 °F)

(g) Flash point: 0°C (32 °F)

(h) Evaporation rate: no data available

(i) Flammability (solid, gas): Not applicable

(j) Ignition temperature: 425°C (797 °F)

(k) Upper/lower flammability or explosive limits: no data available
   • Lower explosion limit: 3.5 Vol %
   • Upper explosion limit: 17.0 Vol %

(l) Vapour pressure: 210 hPa (158 mm Hg) at 20°C
   (68 °F)

(m) Vapour density: no data available

(n) Relative density: 1.02926 g/cm³ (8.537 lbs/gal)

(o) Solubility(ies): Fully miscible with water
   • at 20°C:
   • Soluble (g/L) in:

(p) Partition coefficient: n-octanol/water: no data available

(q) Auto-ignition temperature: no data available

(r) Decomposition temperature: no data available

(s) Viscosity: no data available
• Kinematic viscosity:

• Dynamic viscosity:

(t) Explosive properties: no data available

(u) Oxidizing properties: no data available

9.2. Other safety information:

(a) Bulk density:
no data available

(b) Refraction index:
no data available

(c) Dissociation constant:
no data available

(d) Surface tension:
no data available

(e) Henry constant:
no data available

SECTION 10: Stability and reactivity

10.1. Reactivity:
no data available

10.2. Chemical stability:
stable if used according to specifications

10.3. Possibility of hazardous reactions:
No dangerous reactions known.

10.4. Conditions to avoid:
no data available

10.5. Incompatible materials:
strong oxidizer. Nitric acid

10.6. **Hazardous decomposition products:**

no data available

10.7. **Additional information:**

no data available

**SECTION 11: Toxicological information**

11.1. **Information on toxicological effects:**

(a) **Acute effects**

- *Acute oral toxicity:*
  - a..1. LD50 (oral. Rat): 6200 mg/kg (CHP) (Ethanol)
  - a..2. LD50 (oral. Rat): 908 mg/kg (CHP) (trichloromethane)
- *Acute dermal toxicity:*
  - a..1. LD50 (dermal. Rabbit): >20000 mg/kg (CHP) (Ethanol)
  - a..2. LD50 (dermal. Rat): 75 mg/kg (CHP) (trichloromethane)
- *Acute inhalation toxicity:*
  - a..1. LC50 (inhalative. Rat. 4h): >8000 mg/l (CHP) (Ethanol)

(b) **Irritant and corrosive effects:**

- *Primary irritation to the skin:* Irritant to skin and mucous membranes
- *Irritation to eyes:* Irritating effect
- *Irritation to respiratory tract:* no date available

(c) **Respiratory or skin sensitisation:**

No sensitizing effects known.

(d) **STOT-single exposure:**

not applicable

(e) **STOT-repeated exposure:**

not applicable

(f) **CMR effects (carcinogenicity, mutagenicity and toxicity for reproduction):**

- *Carcinogenicity:*
  - trichloromethane
- *Germ cell mutagenicity:*
  - no indications of human germ cell mutagenicity exist.
Safety Data Sheet

- Reproductive toxicity:
  for ethanol components of preparation, adverse effects on male reproductive systems have been reported in laboratory animals on prolonged exposure
- Aspiration hazard:
  not applicable
- Other adverse effects:
  no data available
- Additional information:
  no data available

SECTION 12: Ecological information

12.1. Ecotoxicity

(a) Acute (short-term) fish toxicity:
  no data available
(b) Chronic (long-term) fish toxicity:
  no data available
(c) Acute (short-term) daphnia toxicity:
  no data available
(d) Chronic (long-term) daphnia toxicity:
  no data available
(e) Acute (short-term) algae toxicity:
  no data available
(f) Chronic (long-term) algae toxicity:
  no data available

12.2. Persistence and degradability:
  no data available

12.3. Bioaccumulative potential:
  Partition coefficient: n-octanol/water: no data available

12.4. Mobility in soil:
  no data available
12.5. **Results of PBT/vPvB assessment:**

no data available

12.6. **Other adverse effects:**

Water hazard class 3 (Self-assessment): extremely hazardous for water. Do not allow product to reach ground water, water course or sewage system, even in small quantities. Danger to drinking water if even extremely small quantities leak into the ground.

**SECTION 13: Disposal considerations**

13.1. **Waste treatment methods:**

(a) **Appropriate disposal / Product:**

- *Dispose according to local legislation:* Consult the appropriate local waste disposal expert about waste disposal.

- *Waste code product:* no data available

(b) **Appropriate disposal / Package:**

- Dispose according to local legislation. Handle contaminated packages in the same way as the substance itself.

(c) **Additional information:**

no data available

**SECTION 14: Transport information**

14.1. **Land transport (ADR/RID)**

(a) **UN number:**

UN1170 (Ethanol solution)

(b) **UN proper shipping name:**

Ethanol solution

(c) **Classification:**

R11 Highly flammable

(d) **Transport hazard class(es):**

3

(e) **Packaging group:**

II

(f) **Environmental hazards:**

No

(g) **Special precautions for user:**

- *Hazard identification number (kmeler No.):* 33
Safety Data Sheet

• Tunnel restriction code: no data available

14.2. Sea transport (IMDG)

(a) UN number: UN1170 (Ethanol solution)
(b) UN proper shipping name: Ethanol solution
(c) Classification: R11 Highly flammable
(d) Transport hazard class(es): 3
(e) Packaging group: II
(f) Environmental hazards:
   • Marine pollutant: No
(g) Special precautions for user: no data available
(h) Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code: Not relevant

14.3. Air transport (ICAO-TI / IATA-DGR)

(a) UN number: UN1170 (Ethanol solution)
(b) UN proper shipping name: Ethanol solution
(c) Classification: R11 Highly flammable
(d) Transport hazard class(es): 3
(e) Packaging group: II
(f) Special precautions for user: Not relevant

SECTION 15: Regulatory information

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

(a) General rules:
   • Water hazard class (WGK): slightly hazardous to water (WGK 1)


### 15.2. Chemical Safety Assessment:

- Section 355 (extremely hazardous substances): 67-66-3 trichloromethane
- Section 313 (Specific toxic chemical listings): 67-66-3 trichloromethane
- TSCA (Toxic Substances Control Act): All ingredients are listed.
- Chemicals known to cause cancer: 67-66-3 trichloromethane
- Chemicals known to cause reproductive toxicity for females: None of the ingredients are listed.
- Chemicals known to cause reproductive toxicity for males: None of the ingredients are listed.
- Chemicals known to cause developmental toxicity: 64-17-5 ethanol

### SECTION 16: Other information

#### 16.1. Abbreviations and acronyms:

- ADR: Accord européen sur le transport des marchandises dangereuses par Route (European Agreement concerning the International Carriage of Dangerous Goods by Road)
- IMDG: International Maritime Code for Dangerous Goods
- DOT: US Department of Transportation
- IATA: International Air Transport Association
- ACGIH: American Conference of Governmental Industrial Hygienists
- NFPA: National Fire Protection Association (USA)
- HMIS: Hazardous Materials Identification System (USA)
- LC50: Lethal concentration, 50 percent
- LD50: Lethal dose, 50 percent
16.2. **Additional information:**

No date available

---

This information contained herein is believed to be accurate but is not warranted to be so. Data and calculations are based on information furnished by the manufacturer of the product and manufacturers of the components of the product.

Users are advised to confirm in advance of need that information is current, applicable and suited to the circumstances of use. Vendor assumes no responsibility for injury to vendee or third persons proximately caused by the material if reasonable safety procedures are not adhered to as stipulated in the data sheet. Furthermore, vendor assumes no responsibility for injury caused by abnormal use of the material even if reasonable safety procedures are followed. Any questions regarding this product should be directed to the manufacturer of the product as described in Section 1.