

Revision Date 27-Dec-2020

Revision Number 3

## SECTION 1: IDENTIFICATION OF THE SUBSTANCE/MIXTURE AND OF THE COMPANY/UNDERTAKING

### 1.1. Product identifier

**Product Description:** Paraformaldehyde solution, 4% in PBS, Thermo Scientific  
**Cat No. :** J19943

**Unique Formula Identifier (UFI)** MCPM-V6Y7-SX08-6P6J

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

**Recommended Use** Laboratory chemicals.  
**Uses advised against** No Information available

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

**Company** Alfa Aesar  
Avocado Research Chemicals, Ltd.  
Shore Road  
Port of Heysham Industrial Park  
Heysham, Lancashire LA3 2XY  
United Kingdom  
Office Tel: +44 (0) 1524 850506  
Office Fax: +44 (0) 1524 850608

**E-mail address** uktech@alfa.com  
www.alfa.com  
Product Safety Department

### 1.4. Emergency telephone number

Call Carechem 24 at  
+44 (0) 1865 407333 (English only);  
+44 (0) 1235 239670 (Multi-language)

**Poison Centre - Emergency information services** **Ireland :** National Poisons Information Centre (NPIC) - **01 809 2166** (8am-10pm, 7 days a week)  
**Malta :** +356 2395 2000  
**Cyprus :** +357 2240 5611

## SECTION 2: HAZARDS IDENTIFICATION

### 2.1. Classification of the substance or mixture

CLP Classification - Regulation (EC) No 1272/2008

#### Physical hazards

Based on available data, the classification criteria are not met

# SAFETY DATA SHEET

Paraformaldehyde solution, 4% in PBS, Thermo Scientific

Revision Date 27-Dec-2020

## Health hazards

Serious Eye Damage/Eye Irritation  
Skin Sensitization  
Carcinogenicity

Category 1 (H318)  
Category 1 (H317)  
Category 2 (H351)

## Environmental hazards

Based on available data, the classification criteria are not met

Full text of Hazard Statements: see section 16

## 2.2. Label elements



Signal Word

Danger

## Hazard Statements

H317 - May cause an allergic skin reaction  
H318 - Causes serious eye damage  
H351 - Suspected of causing cancer

## Precautionary Statements

P280 - Wear protective gloves/protective clothing/eye protection/face protection  
P302 + P352 - IF ON SKIN: Wash with plenty of soap and water  
P305 + P351 + P338 - IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing  
P310 - Immediately call a POISON CENTER or doctor/physician

## 2.3. Other hazards

## SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS

### 3.2. Mixtures

| Component        | CAS-No     | EC-No.    | Weight % | CLP Classification - Regulation (EC) No 1272/2008   |
|------------------|------------|-----------|----------|---|
| Water            | 7732-18-5  | 231-791-2 | 95.0794  | -   |
| Paraformaldehyde | 30525-89-4 |           | 4.0      | Flam. Sol. 2 (H228)<br>Acute Tox. 4 (H302)<br>Acute Tox. 4 (H332)<br>Skin Irrit. 2 (H315)<br>Eye Dam. 1 (H318)<br>Skin Sens. 1 (H317)<br>STOT SE 3 (H335)<br>Carc. 2 (H351) |

# SAFETY DATA SHEET

Paraformaldehyde solution, 4% in PBS, Thermo Scientific

Revision Date 27-Dec-2020

|                                |           |           |        |   |
|--------------------------------|-----------|-----------|--------|---|
| Sodium chloride                | 7647-14-5 | 231-598-3 | 0.768  | - |
| Sodium phosphate dibasic       | 7558-79-4 | 231-448-7 | 0.1094 | - |
| Dihydrogen potassium phosphate | 7778-77-0 | 231-913-4 | 0.024  | - |
| Potassium chloride             | 7447-40-7 | 231-211-8 | 0.0192 | - |

Full text of Hazard Statements: see section 16

## SECTION 4: FIRST AID MEASURES

### 4.1. Description of first aid measures

|   |  |
|---|--|
| <b>General Advice</b>                     | If symptoms persist, call a physician.   |
| <b>Eye Contact</b>                        | Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. Get medical attention.                                  |
| <b>Skin Contact</b>                       | Wash off immediately with plenty of water for at least 15 minutes. If skin irritation persists, call a physician.                                |
| <b>Ingestion</b>                          | Clean mouth with water and drink afterwards plenty of water.   |
| <b>Inhalation</b>                         | Remove to fresh air. If not breathing, give artificial respiration. Get medical attention if symptoms occur.                                     |
| <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. |

### 4.2. Most important symptoms and effects, both acute and delayed

Causes eye burns. May cause allergic skin reaction. Causes severe eye damage. 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

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

**Notes to Physician** Treat symptomatically.

## SECTION 5: FIREFIGHTING MEASURES

### 5.1. Extinguishing media

#### Suitable Extinguishing Media

Carbon dioxide (CO<sub>2</sub>). Powder. Water spray. In case of major fire and large quantities: Evacuate area. Fight fire remotely due to the risk of explosion.

#### Extinguishing media which must not be used for safety reasons

No information available.

### 5.2. Special hazards arising from the substance or mixture

Thermal decomposition can lead to release of irritating gases and vapors.

#### Hazardous Combustion Products

None under normal use conditions.

# SAFETY DATA SHEET

Paraformaldehyde solution, 4% in PBS, Thermo Scientific

Revision Date 27-Dec-2020

## 5.3. Advice for firefighters

As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA/NIOSH (approved or equivalent) and full protective gear.

## SECTION 6: ACCIDENTAL RELEASE MEASURES

### 6.1. Personal precautions, protective equipment and emergency procedures

Ensure adequate ventilation. Use personal protective equipment as required.

### 6.2. Environmental precautions

Should not be released into the environment. See Section 12 for additional Ecological Information.

### 6.3. Methods and material for containment and cleaning up

Soak up with inert absorbent material. Keep in suitable, closed containers for disposal.

### 6.4. Reference to other sections

Refer to protective measures listed in Sections 8 and 13.

## SECTION 7: HANDLING AND STORAGE

### 7.1. Precautions for safe handling

Wear personal protective equipment/face protection. Ensure adequate ventilation. Do not get in eyes, on skin, or on clothing. Avoid ingestion and inhalation.

#### **Hygiene Measures**

Handle in accordance with good industrial hygiene and safety practice. Keep away from food, drink and animal feeding stuffs. Do not eat, drink or smoke when using this product. Remove and wash contaminated clothing and gloves, including the inside, before re-use. Wash hands before breaks and after work.

### 7.2. Conditions for safe storage, including any incompatibilities

Keep refrigerated.

**Technical Rules for Hazardous Substances (TRGS) 510 Storage Class (LGK)  
(Germany)**

Class 12

### 7.3. Specific end use(s)

Use in laboratories

## SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

### 8.1. Control parameters

#### **Exposure limits**

List source(s):

#### **Biological limit values**

This product, as supplied, does not contain any hazardous materials with biological limits established by the region specific regulatory bodies

# SAFETY DATA SHEET

Paraformaldehyde solution, 4% in PBS, Thermo Scientific

Revision Date 27-Dec-2020

## Monitoring methods

BS EN 14042:2003 Title Identifier: Workplace atmospheres. Guide for the application and use of procedures for the assessment of exposure to chemical and biological agents.

**Derived No Effect Level (DNEL)** No information available

| <u>Route of exposure</u>     | <u>Acute effects (local)</u> | <u>Acute effects (systemic)</u> | <u>Chronic effects (local)</u> | <u>Chronic effects (systemic)</u> |
|------------------------------|------------------------------|---------------------------------|--------------------------------|-----------------------------------|
| Oral<br>Dermal<br>Inhalation |                              |                                 |                                |                                   |

**Predicted No Effect Concentration (PNEC)** No information available.

## 8.2. Exposure controls

### Engineering Measures

Ensure that eyewash stations and safety showers are close to the workstation location.

Wherever possible, engineering control measures such as the isolation or enclosure of the process, the introduction of process or equipment changes to minimise release or contact, and the use of properly designed ventilation systems, should be adopted to control hazardous materials at source

### Personal protective equipment

**Eye Protection** Goggles (European standard - EN 166)

**Hand Protection** Protective gloves

| <u>Glove material</u>           | <u>Breakthrough time</u> | <u>Glove thickness</u> | <u>EU standard</u> | <u>Glove comments</u> |
|---------------------------------|--------------------------|------------------------|--------------------|-----------------------|
| Nitrile rubber                  | 480 minutes              | 0.11mm                 | EN 374             | (minimum requirement) |
| <b>Skin and body protection</b> | Long sleeved clothing    |                        |                    |                       |

Inspect gloves before use.

Please observe the instructions regarding permeability and breakthrough time which are provided by the supplier of the gloves. (Refer to manufacturer/supplier for information)

Ensure gloves are suitable for the task: Chemical compatibility, Dexterity, Operational conditions, User susceptibility, e.g. sensitisation effects, also take into consideration the specific local conditions under which the product is used, such as the danger of cuts, abrasion.

Remove gloves with care avoiding skin contamination.

**Respiratory Protection** When workers are facing concentrations above the exposure limit they must use appropriate certified respirators. To protect the wearer, respiratory protective equipment must be the correct fit and be used and maintained properly

**Large scale/emergency use** In case of insufficient ventilation, wear suitable respiratory equipment  
**Recommended Filter type:** Multi-purpose/ABEK conforming to EN14387

**Small scale/Laboratory use** Use a NIOSH/MSHA or European Standard EN 149:2001 approved respirator if exposure limits are exceeded or if irritation or other symptoms are experienced. When RPE is used a face piece Fit Test should be conducted

**Environmental exposure controls** No information available.

## SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

# SAFETY DATA SHEET

Paraformaldehyde solution, 4% in PBS, Thermo Scientific

Revision Date 27-Dec-2020

## 9.1. Information on basic physical and chemical properties

|  |                          |  |
|--|--------------------------|--|
| <b>Physical State</b>                          | Liquid                   |  |
| <b>Appearance</b>                              |                          |  |
| <b>Odor</b>                                    | No information available |  |
| <b>Odor Threshold</b>                          | No data available        |  |
| <b>Melting Point/Range</b>                     | No data available        |  |
| <b>Softening Point</b>                         | No data available        |  |
| <b>Boiling Point/Range</b>                     | No information available |  |
| <b>Flammability (liquid)</b>                   | No data available        |  |
| <b>Flammability (solid,gas)</b>                | Not applicable           | Liquid                                   |
| <b>Explosion Limits</b>                        | No data available        |  |
| <b>Flash Point</b>                             | No information available | <b>Method -</b> No information available |
| <b>Autoignition Temperature</b>                | No data available        |  |
| <b>Decomposition Temperature</b>               | No data available        |  |
| <b>pH</b>                                      | No information available |  |
| <b>Viscosity</b>                               | No data available        |  |
| <b>Water Solubility</b>                        | Immiscible               |  |
| <b>Solubility in other solvents</b>            | No information available |  |
| <b>Partition Coefficient (n-octanol/water)</b> |                          |  |
| <b>Vapor Pressure</b>                          | 23 hPa @ 20 °C           |  |
| <b>Density / Specific Gravity</b>              | No data available        |  |
| <b>Bulk Density</b>                            | Not applicable           | Liquid                                   |
| <b>Vapor Density</b>                           | No data available        | (Air = 1.0)                              |
| <b>Particle characteristics</b>                | Not applicable (liquid)  |  |

## 9.2. Other information

## SECTION 10: STABILITY AND REACTIVITY

10.1. Reactivity None known, based on information available

10.2. Chemical stability Stable under normal conditions.

### 10.3. Possibility of hazardous reactions

**Hazardous Polymerization** No information available.  
**Hazardous Reactions** None under normal processing.

10.4. Conditions to avoid Incompatible products. Excess heat.

10.5. Incompatible materials Water.

10.6. Hazardous decomposition products None under normal use conditions.

## SECTION 11: TOXICOLOGICAL INFORMATION

### 11.1. Information on hazard classes as defined in Regulation (EC) No 1272/2008

# SAFETY DATA SHEET

Paraformaldehyde solution, 4% in PBS, Thermo Scientific

Revision Date 27-Dec-2020

## Product Information

### (a) acute toxicity;

Oral

Based on available data, the classification criteria are not met

Dermal

Based on available data, the classification criteria are not met

Inhalation

Based on available data, the classification criteria are not met

### Toxicology data for the components

| Component                      | LD50 Oral                 | LD50 Dermal                  | LC50 Inhalation                           |
|--------------------------------|---------------------------|------------------------------|---|
| Water                          | -                         | -                            | -   |
| Paraformaldehyde               | LD50 = 800 mg/kg ( Rat )  | -                            | LC50 = 1070 mg/m <sup>3</sup> ( Rat ) 4 h |
| Sodium chloride                | LD50 = 3 g/kg ( Rat )     | -                            | LC50 > 42 g/m <sup>3</sup> ( Rat ) 1 h    |
| Sodium phosphate dibasic       | LD50 = 17 g/kg ( Rat )    | -                            | -   |
| Dihydrogen potassium phosphate | LD50 = 3200 mg/kg ( Rat ) | LD50 > 4640 mg/kg ( Rabbit ) | -   |
| Potassium chloride             | LD50 = 2600 mg/kg ( Rat ) | -                            | -   |

(b) skin corrosion/irritation; No data available

(c) serious eye damage/irritation; Category 1

### (d) respiratory or skin sensitization;

Respiratory

No data available

Skin

Category 1

May cause sensitization by skin contact

(e) germ cell mutagenicity; No data available

(f) carcinogenicity; Category 2

There are no known carcinogenic chemicals in this product

(g) reproductive toxicity; No data available

(h) STOT-single exposure; No data available

(i) STOT-repeated exposure; No data available

Target Organs

No information available.

(j) aspiration hazard; No data available

**Symptoms / effects, both acute and delayed** 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.

### 11.2. Information on other hazards

**Endocrine Disrupting Properties** Assess endocrine disrupting properties for human health. This product does not contain any

# SAFETY DATA SHEET

Paraformaldehyde solution, 4% in PBS, Thermo Scientific

Revision Date 27-Dec-2020

known or suspected endocrine disruptors.

## SECTION 12: ECOLOGICAL INFORMATION

### 12.1. Toxicity

#### Ecotoxicity effects

| Component          | Freshwater Fish  | Water Flea          | Freshwater Algae    |
|--------------------|--|---------------------|---------------------|
| Paraformaldehyde   | >10 mg/L 96h   | EC50 = 42 mg/L 24h  |                     |
| Sodium chloride    | Pimephals prome: LC50: 7650 mg/L/96h   | EC50: 1000 mg/L/48h |                     |
| Potassium chloride | Lepomis macrochirus: LC50: 1060 mg/L /96h<br>Pimephales promelas: LC50: 750 - 1020 mg/L /96h | EC50: 825 mg/L/48h  | EC50: 2500 mg/L/72h |

### 12.2. Persistence and degradability

#### Persistence

Immiscible with water.

### 12.3. Bioaccumulative potential

May have some potential to bioaccumulate

### 12.4. Mobility in soil

Spillage unlikely to penetrate soil Is not likely mobile in the environment due its low water solubility.

### 12.5. Results of PBT and vPvB assessment

No data available for assessment.

### 12.6. Endocrine disrupting properties

#### Endocrine Disruptor Information

This product does not contain any known or suspected endocrine disruptors

### 12.7. Other adverse effects

#### Persistent Organic Pollutant Ozone Depletion Potential

This product does not contain any known or suspected substance

This product does not contain any known or suspected substance

## SECTION 13: DISPOSAL CONSIDERATIONS

### 13.1. Waste treatment methods

#### Waste from Residues/Unused Products

Waste is classified as hazardous. Dispose of in accordance with the European Directives on waste and hazardous waste. Dispose of in accordance with local regulations.

#### Contaminated Packaging

Dispose of this container to hazardous or special waste collection point.

#### European Waste Catalogue (EWC)

According to the European Waste Catalog, Waste Codes are not product specific, but application specific.

#### Other Information

Waste codes should be assigned by the user based on the application for which the product was used. Do not empty into drains. Do not flush to sewer.

## SECTION 14: TRANSPORT INFORMATION

#### IMDG/IMO

Not regulated



# SAFETY DATA SHEET

Paraformaldehyde solution, 4% in PBS, Thermo Scientific

Revision Date 27-Dec-2020

- 14.1. UN number  
14.2. UN proper shipping name  
14.3. Transport hazard class(es)  
14.4. Packing group

ADR Not regulated

- 14.1. UN number  
14.2. UN proper shipping name  
14.3. Transport hazard class(es)  
14.4. Packing group

IATA Not regulated

- 14.1. UN number  
14.2. UN proper shipping name  
14.3. Transport hazard class(es)  
14.4. Packing group

14.5. Environmental hazards No hazards identified

14.6. Special precautions for user No special precautions required

14.7. Maritime transport in bulk according to IMO instruments Not applicable, packaged goods

## SECTION 15: REGULATORY INFORMATION

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

#### International Inventories

X = listed, Europe (EINECS/ELINCS/NLP), U.S.A. (TSCA), Canada (DSL/NDSL), Philippines (PICCS), China (IECSC), Japan (ENCS), Australia (AICS), Korea (ECL).

| Component                      | EINECS    | ELINCS | NLP | TSCA | DSL | NDSL | PICCS | ENCS | IECSC | AICS | KECL         |
|--------------------------------|-----------|--------|-----|------|-----|------|-------|------|-------|------|--------------|
| Water                          | 231-791-2 | -      |     | X    | X   | -    | X     | X    | X     | X    | KE-3540<br>0 |
| Paraformaldehyde               | -         | -      |     | X    | X   | -    | X     | X    | X     | X    | KE-2781<br>8 |
| Sodium chloride                | 231-598-3 | -      |     | X    | X   | -    | X     | X    | X     | X    | KE-3138<br>7 |
| Sodium phosphate dibasic       | 231-448-7 | -      |     | X    | X   | -    | X     | X    | X     | X    | KE-1234<br>4 |
| Dihydrogen potassium phosphate | 231-913-4 | -      |     | X    | X   | -    | X     | X    | X     | X    | KE-2862<br>2 |
| Potassium chloride             | 231-211-8 | -      |     | X    | X   | -    | X     | X    | X     | X    | KE-2908<br>6 |

### Regulation (EC) No 649/2012 of the European Parliament and of the Council of 4 July 2012 concerning the export and import of dangerous chemicals

Not applicable

#### National Regulations

**WGK Classification** Water endangering class = 1 (self classification)

| Component        | Germany - Water Classification (VwVwS) | Germany - TA-Luft Class |
|------------------|--|-------------------------|
| Paraformaldehyde | WGK2                                   |                         |

ALFAAJ19943

# SAFETY DATA SHEET

Paraformaldehyde solution, 4% in PBS, Thermo Scientific

Revision Date 27-Dec-2020

|                                |      |  |
|--------------------------------|------|--|
| Sodium chloride                | WGK1 |  |
| Sodium phosphate dibasic       | WGK1 |  |
| Dihydrogen potassium phosphate | WGK1 |  |
| Potassium chloride             | WGK1 |  |

| Component          | France - INRS (Tables of occupational diseases)      |
|--------------------|--|
| Sodium chloride    | Tableaux des maladies professionnelles (TMP) - RG 78 |
| Potassium chloride | Tableaux des maladies professionnelles (TMP) - RG 67 |

UK - Take note of Control of Substances Hazardous to Health Regulations (COSHH) 2002 and 2005 Amendment

## 15.2. Chemical safety assessment

Chemical Safety Assessment/Reports (CSA/CSR) are not required for mixtures

## SECTION 16: OTHER INFORMATION

### Full text of H-Statements referred to under sections 2 and 3

H228 - Flammable solid  
H302 - Harmful if swallowed  
H315 - Causes skin irritation  
H317 - May cause an allergic skin reaction  
H318 - Causes serious eye damage  
H332 - Harmful if inhaled  
H335 - May cause respiratory irritation  
H351 - Suspected of causing cancer

### Legend

**CAS** - Chemical Abstracts Service

**EINECS/ELINCS** - European Inventory of Existing Commercial Chemical Substances/EU List of Notified Chemical Substances

**PICCS** - Philippines Inventory of Chemicals and Chemical Substances

**IECSC** - Chinese Inventory of Existing Chemical Substances

**KECL** - Korean Existing and Evaluated Chemical Substances

**TSCA** - United States Toxic Substances Control Act Section 8(b) Inventory

**DSL/NDSL** - Canadian Domestic Substances List/Non-Domestic Substances List

**ENCS** - Japanese Existing and New Chemical Substances

**AICS** - Australian Inventory of Chemical Substances

**NZIoC** - New Zealand Inventory of Chemicals

**WEL** - Workplace Exposure Limit

**ACGIH** - American Conference of Governmental Industrial Hygienists

**DNEL** - Derived No Effect Level

**RPE** - Respiratory Protective Equipment

**LC50** - Lethal Concentration 50%

**NOEC** - No Observed Effect Concentration

**PBT** - Persistent, Bioaccumulative, Toxic

**TWA** - Time Weighted Average

**IARC** - International Agency for Research on Cancer Predicted No Effect Concentration (PNEC)

**LD50** - Lethal Dose 50%

**EC50** - Effective Concentration 50%

**POW** - Partition coefficient Octanol:Water

**vPvB** - very Persistent, very Bioaccumulative

**ADR** - European Agreement Concerning the International Carriage of Dangerous Goods by Road

**IMO/IMDG** - International Maritime Organization/International Maritime Dangerous Goods Code

**OECD** - Organisation for Economic Co-operation and Development

**BCF** - Bioconcentration factor

**ICAO/IATA** - International Civil Aviation Organization/International Air Transport Association

**MARPOL** - International Convention for the Prevention of Pollution from Ships

**ATE** - Acute Toxicity Estimate

**VOC** (volatile organic compound)

### Key literature references and sources for data

<https://echa.europa.eu/information-on-chemicals>

Suppliers safety data sheet, Chemadvisor - LOLI, Merck index, RTECS

### Classification and procedure used to derive the classification for mixtures according to Regulation (EC) 1272/2008 [CLP]:

**Physical hazards** On basis of test data

**Health Hazards** Calculation method

**Environmental hazards** Calculation method

# SAFETY DATA SHEET

Paraformaldehyde solution, 4% in PBS, Thermo Scientific

Revision Date 27-Dec-2020

---

## Training Advice

Chemical hazard awareness training, incorporating labelling, Safety Data Sheets (SDS), Personal Protective Equipment (PPE) and hygiene.

## Prepared By

Health, Safety and Environmental Department

## Revision Date

27-Dec-2020

## Revision Summary

SDS authoring systems update, replaces ChemGes SDS No. 2,723.

**This safety data sheet complies with the requirements of Regulation (EC) No. 1907/2006  
COMMISSION REGULATION (EU) 2020/878 amending Annex II to Regulation (EC) No  
1907/2006**

## Disclaimer

The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text

**End of Safety Data Sheet**