

00803SG

## Section 1. Product and company identification

**Product name** : 500-F-TISAB/514-F-TISAB (TISAB solution for fluoride ion selective electrode)  
**Product code** : 3200697166, 3200700170, 3200991632  
**SDS Drawing Code** : M002748B

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

|                             |
|-----------------------------|
| <b>Identified uses</b>      |
| Ionic strength adjuster     |
| <b>Uses advised against</b> |
| Not available.              |

**Supplier's details** : HORIBA Advanced Techno Co., Ltd.  
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## Section 2. Hazards identification

**Classification of the substance or mixture** : SERIOUS EYE DAMAGE/ EYE IRRITATION - Category 2A

Percentage of the mixture consisting of ingredient(s) of unknown acute oral toxicity:  
 3%

### GHS label elements

**Hazard pictograms** :



**Signal word** : Warning  
**Hazard statements** : Causes serious eye irritation.

### Precautionary statements

**General** : Read label before use. Keep out of reach of children. If medical advice is needed, have product container or label at hand.

**Prevention** : Read label before use. Keep out of reach of children. If medical advice is needed: Have product container or label at hand. Wear eye or face protection. Wash hands thoroughly after handling.

**Response** : 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 or attention.

**Storage** : Keep cool and protect from sunlight. Store locked up.

**Disposal** : Dispose of contents and container in accordance with all local, regional, national and international regulations.

**Other hazards which do not result in classification** : None known.

### Section 3. Composition/information on ingredients

Substance/mixture : Mixture

CAS number/other identifiers

EC number : Mixture.

Product code : 3200697166, 3200700170, 3200991632

| Ingredient name             | %     | CAS number |
|-----------------------------|-------|------------|
| acetic acid                 | 6%    | 64-19-7    |
| Sodium chloride             | 6%    | 7647-14-5  |
| sodium hydroxide            | 3%    | 1310-73-2  |
| Trisodium Citrate Dihydrate | 0.03% | 6132-04-3  |

There are no additional ingredients present which, within the current knowledge of the supplier and in the concentrations applicable, are classified as hazardous to health or the environment and hence require reporting in this section.

Occupational exposure limits, if available, are listed in Section 8.

Chemical formula : Not applicable.

### Section 4. First aid measures

Description of necessary first aid measures

- Eye contact** : Immediately flush eyes with plenty of water, occasionally lifting the upper and lower eyelids. Check for and remove any contact lenses. Continue to rinse for at least 15 minutes. Get medical attention.
- Inhalation** : Remove victim to fresh air and keep at rest in a position comfortable for breathing. If not breathing, if breathing is irregular or if respiratory arrest occurs, provide artificial respiration or oxygen by trained personnel. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation. Get medical attention if adverse health effects persist or are severe. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband.
- Skin contact** : Flush contaminated skin with plenty of water. Remove contaminated clothing and shoes. Get medical attention if symptoms occur. Wash clothing before reuse. Clean shoes thoroughly before reuse.
- Ingestion** : Wash out mouth with water. Remove dentures if any. If material has been swallowed and the exposed person is conscious, give small quantities of water to drink. Stop if the exposed person feels sick as vomiting may be dangerous. Do not induce vomiting unless directed to do so by medical personnel. If vomiting occurs, the head should be kept low so that vomit does not enter the lungs. Get medical attention if adverse health effects persist or are severe. Never give anything by mouth to an unconscious person. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband.

Most important symptoms/effects, acute and delayed

Potential acute health effects

- Eye contact** : Causes serious eye irritation.
- Inhalation** : No known significant effects or critical hazards.
- Skin contact** : No known significant effects or critical hazards.
- Ingestion** : No known significant effects or critical hazards.

Over-exposure signs/symptoms

- Eye contact** : Adverse symptoms may include the following:  
pain or irritation  
watering  
redness
- Inhalation** : No specific data.

## Section 4. First aid measures

- Skin contact** : No specific data.  
**Ingestion** : No specific data.

### Indication of immediate medical attention and special treatment needed, if necessary

- Notes to physician** : Treat symptomatically. Contact poison treatment specialist immediately if large quantities have been ingested or inhaled.  
**Specific treatments** : No specific treatment.  
**Protection of first-aiders** : No action shall be taken involving any personal risk or without suitable training. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation.

See toxicological information (Section 11)

## Section 5. Fire-fighting measures

### Extinguishing media

- Suitable extinguishing media** : Use an extinguishing agent suitable for the surrounding fire.  
**Unsuitable extinguishing media** : None known.

**Specific hazards arising from the chemical** : In a fire or if heated, a pressure increase will occur and the container may burst.

- Hazardous thermal decomposition products** : Decomposition products may include the following materials:  
Carbon dioxide  
carbon monoxide  
halogenated compounds  
metal oxide/oxides

**Special protective actions for fire-fighters** : Promptly isolate the scene by removing all persons from the vicinity of the incident if there is a fire. No action shall be taken involving any personal risk or without suitable training.

**Special protective equipment for fire-fighters** : Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode.

## Section 6. Accidental release measures

### Personal precautions, protective equipment and emergency procedures

- For non-emergency personnel** : No action shall be taken involving any personal risk or without suitable training. Evacuate surrounding areas. Keep unnecessary and unprotected personnel from entering. Do not touch or walk through spilled material. Avoid breathing vapor or mist. Provide adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Put on appropriate personal protective equipment.  
**For emergency responders** : If specialized clothing is required to deal with the spillage, take note of any information in Section 8 on suitable and unsuitable materials. See also the information in "For non-emergency personnel".

**Environmental precautions** : Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers. Inform the relevant authorities if the product has caused environmental pollution (sewers, waterways, soil or air).

### Methods and materials for containment and cleaning up

- Small spill** : Stop leak if without risk. Move containers from spill area. Dilute with water and mop up if water-soluble. Alternatively, or if water-insoluble, absorb with an inert dry material and place in an appropriate waste disposal container. Dispose of via a licensed waste disposal contractor.

## Section 6. Accidental release measures

- Large spill** : Stop leak if without risk. Move containers from spill area. Approach release from upwind. Prevent entry into sewers, water courses, basements or confined areas. Wash spillages into an effluent treatment plant or proceed as follows. Contain and collect spillage with non-combustible, absorbent material e.g. sand, earth, vermiculite or diatomaceous earth and place in container for disposal according to local regulations (see Section 13). Dispose of via a licensed waste disposal contractor. Contaminated absorbent material may pose the same hazard as the spilled product. Note: see Section 4 for emergency contact information and Section 13 for waste disposal.

## Section 7. Handling and storage

### Precautions for safe handling

- Protective measures** : Put on appropriate personal protective equipment (see Section 8). Do not ingest. Avoid contact with eyes, skin and clothing. Avoid breathing vapor or mist. Avoid release to the environment. Keep in the original container or an approved alternative made from a compatible material, kept tightly closed when not in use. Empty containers retain product residue and can be hazardous. Do not reuse container.
- Advice on general occupational hygiene** : Eating, drinking and smoking should be prohibited in areas where this material is handled, stored and processed. Workers should wash hands and face before eating, drinking and smoking. Remove contaminated clothing and protective equipment before entering eating areas. See also Section 8 for additional information on hygiene measures.

- Conditions for safe storage, including any incompatibilities** : Store in accordance with local regulations. Store in original container protected from direct sunlight in a dry, cool and well-ventilated area, away from incompatible materials (see Section 10) and food and drink. Keep container tightly closed and sealed until ready for use. Containers that have been opened must be carefully resealed and kept upright to prevent leakage. Do not store in unlabeled containers. Use appropriate containment to avoid environmental contamination. See Section 10 for incompatible materials before handling or use.

## Section 8. Exposure controls/personal protection

### Control parameters

#### Occupational exposure limits

| Ingredient name  | Exposure limits   |
|------------------|---|
| acetic acid      | <b>Workplace Safety and Health Act (Singapore, 2/2006).</b><br>PEL (long term): 10 ppm 8 hours.<br>PEL (long term): 25 mg/m <sup>3</sup> 8 hours.<br>PEL (short term): 37 mg/m <sup>3</sup> 15 minutes.<br>PEL (short term): 15 ppm 15 minutes. |
| sodium hydroxide | <b>Workplace Safety and Health Act (Singapore, 2/2006).</b><br>PEL (short term): 2 mg/m <sup>3</sup> 15 minutes.  |

- Appropriate engineering controls** : Good general ventilation should be sufficient to control worker exposure to airborne contaminants.
- Environmental exposure controls** : Emissions from ventilation or work process equipment should be checked to ensure they comply with the requirements of environmental protection legislation. In some cases, fume scrubbers, filters or engineering modifications to the process equipment will be necessary to reduce emissions to acceptable levels.

### Individual protection measures

## Section 8. Exposure controls/personal protection

- Hygiene measures** : Wash hands, forearms and face thoroughly after handling chemical products, before eating, smoking and using the lavatory and at the end of the working period. Appropriate techniques should be used to remove potentially contaminated clothing. Wash contaminated clothing before reusing. Ensure that eyewash stations and safety showers are close to the workstation location.
- Eye/face protection** : Safety eyewear complying with an approved standard should be used when a risk assessment indicates this is necessary to avoid exposure to liquid splashes, mists, gases or dusts. If contact is possible, the following protection should be worn, unless the assessment indicates a higher degree of protection: chemical splash goggles.
- Skin protection**
- Hand protection** : Chemical-resistant, impervious gloves complying with an approved standard should be worn at all times when handling chemical products if a risk assessment indicates this is necessary. Considering the parameters specified by the glove manufacturer, check during use that the gloves are still retaining their protective properties. It should be noted that the time to breakthrough for any glove material may be different for different glove manufacturers. In the case of mixtures, consisting of several substances, the protection time of the gloves cannot be accurately estimated.
- Body protection** : Personal protective equipment for the body should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product.
- Other skin protection** : Appropriate footwear and any additional skin protection measures should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product.
- Respiratory protection** : Based on the hazard and potential for exposure, select a respirator that meets the appropriate standard or certification. Respirators must be used according to a respiratory protection program to ensure proper fitting, training, and other important aspects of use.

## Section 9. Physical and chemical properties

### Appearance

- Physical state** : Liquid.
- Color** : Colorless.
- Odor** : Pungent.
- Odor threshold** : Not available.
- pH** : Not available.
- Melting point** : Not available.
- Boiling point** : Not available.
- Flash point** : Not available.
- Evaporation rate** : Not available.
- Flammability (solid, gas)** : Not available.
- Lower and upper explosive (flammable) limits** : Not available.
- Vapor pressure** : Not available.
- Vapor density** : Not available.
- Relative density** : Not available.
- Solubility** : Not available.
- Partition coefficient: n-octanol/water** : Not applicable.
- Auto-ignition temperature** : Not available.
- Decomposition temperature** : Not available.
- Viscosity** : Not available.

## Section 10. Stability and reactivity

- Reactivity** : No specific test data related to reactivity available for this product or its ingredients.
- Chemical stability** : The product is stable.
- Possibility of hazardous reactions** : Under normal conditions of storage and use, hazardous reactions will not occur.
- Conditions to avoid** : No specific data.
- Incompatible materials** : No specific data.
- Hazardous decomposition products** : Under normal conditions of storage and use, hazardous decomposition products should not be produced.
- SADT** : Not available.

## Section 11. Toxicological information

### Information on toxicological effects

#### Acute toxicity

| Product/ingredient name | Result                | Species | Dose                    | Exposure |
|-------------------------|-----------------------|---------|-------------------------|----------|
| acetic acid             | LC50 Inhalation Vapor | Rat     | 11000 mg/m <sup>3</sup> | 4 hours  |
|                         | LD50 Dermal           | Rabbit  | 1060 mg/kg              | -        |
|                         | LD50 Oral             | Rat     | 3310 mg/kg              | -        |
| sodium chloride         | LD50 Oral             | Rat     | 3000 mg/kg              | -        |

#### Irritation/Corrosion

| Product/ingredient name | Result                   | Species | Score           | Exposure        | Observation |
|-------------------------|--------------------------|---------|-----------------|-----------------|-------------|
| acetic acid             | Eyes - Mild irritant     | Rabbit  | -               | 0.5 minutes     | -           |
|                         | Skin - Mild irritant     | Human   | -               | 5 mg            | -           |
|                         | Skin - Mild irritant     | Rabbit  | -               | 24 hours 50 mg  | -           |
| sodium chloride         | Skin - Severe irritant   | Rabbit  | -               | 24 hours 50 mg  | -           |
|                         | Eyes - Moderate irritant | Rabbit  | -               | 10 mg           | -           |
|                         | Eyes - Moderate irritant | Rabbit  | -               | 24 hours 100 mg | -           |
| sodium hydroxide        | Skin - Mild irritant     | Rabbit  | -               | 24 hours 500 mg | -           |
|                         | Eyes - Mild irritant     | Rabbit  | -               | 400 ug          | -           |
|                         | Eyes - Severe irritant   | Monkey  | -               | 24 hours 1 %    | -           |
|                         | Eyes - Severe irritant   | Rabbit  | -               | 1 %             | -           |
|                         | Eyes - Severe irritant   | Rabbit  | -               | 0.5 minutes     | -           |
|                         | Eyes - Severe irritant   | Rabbit  | -               | 1 mg            | -           |
|                         | Eyes - Severe irritant   | Rabbit  | -               | 24 hours 50 ug  | -           |
| Skin - Mild irritant    | Human                    | -       | 24 hours 2 %    | -               |             |
| Skin - Severe irritant  | Rabbit                   | -       | 24 hours 500 mg | -               |             |

#### Sensitization

Not available.

#### Mutagenicity

Not available.

#### Carcinogenicity

## Section 11. Toxicological information

Not available.

### Reproductive toxicity

Not available.

### Teratogenicity

Not available.

### Specific target organ toxicity (single exposure)

Not available.

### Specific target organ toxicity (repeated exposure)

Not available.

### Aspiration hazard

Not available.

**Information on the likely routes of exposure** : Not available.

### Potential acute health effects

- Eye contact** : Causes serious eye irritation.
- Inhalation** : No known significant effects or critical hazards.
- Skin contact** : No known significant effects or critical hazards.
- Ingestion** : No known significant effects or critical hazards.

### Symptoms related to the physical, chemical and toxicological characteristics

- Eye contact** : Adverse symptoms may include the following:  
pain or irritation  
watering  
redness
- Inhalation** : No specific data.
- Skin contact** : No specific data.
- Ingestion** : No specific data.

### Delayed and immediate effects and also chronic effects from short and long term exposure

#### Short term exposure

- Potential immediate effects** : Not available.
- Potential delayed effects** : Not available.

#### Long term exposure

- Potential immediate effects** : Not available.
- Potential delayed effects** : Not available.

### Potential chronic health effects

Not available.

- General** : No known significant effects or critical hazards.
- Carcinogenicity** : No known significant effects or critical hazards.
- Mutagenicity** : No known significant effects or critical hazards.
- Teratogenicity** : No known significant effects or critical hazards.
- Developmental effects** : No known significant effects or critical hazards.
- Fertility effects** : No known significant effects or critical hazards.

## Section 11. Toxicological information

### Numerical measures of toxicity

#### Acute toxicity estimates

| Route               | ATE value      |
|---------------------|----------------|
| Dermal              | 17666.67 mg/kg |
| Inhalation (vapors) | 183.33 mg/l    |

## Section 12. Ecological information

### Toxicity

| Product/ingredient name        | Result  | Species   | Exposure |
|--------------------------------|---|---|----------|
| acetic acid                    | Acute EC50 73400 µg/l Fresh water               | Algae - Navicula seminulum  | 96 hours |
|                                | Acute EC50 65000 µg/l Fresh water               | Daphnia - Daphnia magna - Neonate   | 48 hours |
| sodium chloride                | Acute LC50 32 mg/l Marine water                 | Crustaceans - Artemia salina  | 48 hours |
|                                | Acute LC50 75000 µg/l Fresh water               | Fish - Lepomis macrochirus  | 96 hours |
|                                | Acute EC50 2430000 µg/l Fresh water             | Algae - Navicula seminulum  | 96 hours |
|                                | Acute EC50 52.64 mg/dm <sup>3</sup> Fresh water | Algae - Scenedesmus quadricauda   | 72 hours |
|                                | Acute EC50 519.6 mg/l Fresh water               | Crustaceans - Cypris subglobosa   | 48 hours |
|                                | Acute EC50 4.96 µg/l Fresh water                | Daphnia - Daphnia magna - Neonate   | 48 hours |
| sodium hydroxide               | Acute IC50 6.87 g/L Fresh water                 | Aquatic plants - Lemna minor  | 96 hours |
|                                | Acute LC50 1000000 µg/l Fresh water             | Fish - Morone saxatilis - Larvae  | 96 hours |
|                                | Chronic LC10 781 mg/l Fresh water               | Crustaceans - Hyalella azteca - Juvenile (Fledgling, Hatchling, Weanling) | 3 weeks  |
|                                | Chronic NOEC 6 g/L Fresh water                  | Aquatic plants - Lemna minor  | 96 hours |
|                                | Chronic NOEC 0.314 g/L Fresh water              | Daphnia - Daphnia pulex   | 21 days  |
|                                | Chronic NOEC 100 mg/l Fresh water               | Fish - Gambusia holbrooki - Adult   | 8 weeks  |
|                                | Acute EC50 40.38 mg/l Fresh water               | Crustaceans - Ceriodaphnia dubia - Neonate                                | 48 hours |
| Acute LC50 125 ppm Fresh water | Fish - Gambusia affinis - Adult                 | 96 hours  |          |

### Persistence/degradability

Not available.

### Bioaccumulative potential

| Product/ingredient name | LogP <sub>ow</sub> | BCF  | Potential |
|-------------------------|--------------------|------|-----------|
| acetic acid             | -0.17              | 3.16 | low       |

### Mobility in soil

Soil/water partition coefficient (K<sub>oc</sub>) : Not available.

Other adverse effects : No known significant effects or critical hazards.



## Section 13. Disposal considerations

**Disposal methods** : The generation of waste should be avoided or minimized wherever possible. Disposal of this product, solutions and any by-products should at all times comply with the requirements of environmental protection and waste disposal legislation and any regional local authority requirements. Dispose of surplus and non-recyclable products via a licensed waste disposal contractor. Waste should not be disposed of untreated to the sewer unless fully compliant with the requirements of all authorities with jurisdiction. Incineration or landfill should only be considered when recycling is not feasible. This material and its container must be disposed of in a safe way. Care should be taken when handling emptied containers that have not been cleaned or rinsed out. Empty containers or liners may retain some product residues. Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers.

## Section 14. Transport information

|                                   | UN             | IMDG           | IATA           |
|-----------------------------------|----------------|----------------|----------------|
| <b>UN number</b>                  | Not regulated. | Not regulated. | Not regulated. |
| <b>UN proper shipping name</b>    | -              | -              | -              |
| <b>Transport hazard class(es)</b> | -              | -              | -              |
| <b>Packing group</b>              | -              | -              | -              |
| <b>Environmental hazards</b>      | No.            | No.            | No.            |
| <b>Additional information</b>     | -              | -              | -              |

**Special precautions for user** : **Transport within user's premises:** always transport in closed containers that are upright and secure. Ensure that persons transporting the product know what to do in the event of an accident or spillage.

## Section 15. Regulatory information

Singapore - hazardous chemicals under government control

None.

## Section 16. Other information

History

**Date of issue/Date of revision** : 6/7/2023

**Date of previous issue** : 6/2/2021

**Key to abbreviations** : ATE = Acute Toxicity Estimate  
 BCF = Bioconcentration Factor  
 GHS = Globally Harmonized System of Classification and Labelling of Chemicals  
 IATA = International Air Transport Association  
 IBC = Intermediate Bulk Container  
 IMDG = International Maritime Dangerous Goods  
 LogPow = logarithm of the octanol/water partition coefficient  
 MARPOL = International Convention for the Prevention of Pollution From Ships, 1973 as modified by the Protocol of 1978. ("Marpol" = marine pollution)  
 UN = United Nations

## Section 16. Other information

✔ Indicates information that has changed from previously issued version.

### 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.