

ALFAA83106

## Yttrium(III) fluoride

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

**产品说明:** 氟化钇(III)  
**Product Description:** Yttrium(III) fluoride

**Cat No. :** 83106  
**CAS No** 13709-49-4  
**Molecular Formula** F3 Y

**Supplier** Avocado Research Chemicals Ltd.  
(Part of Thermo Fisher Scientific)  
Shore Road, Heysham  
Lancashire, LA3 2XY,  
United Kingdom  
Office Tel: +44 (0) 1524 850506  
Office Fax: +44 (0) 1524 850608

**Emergency Telephone Number** For information **US** call: 001-800-227-6701 / **Europe** call: +32 14 57 52 11  
Emergency Number **US**:001-201-796-7100 / **Europe**: +32 14 57 52 99  
**CHEMTREC** Tel. No. **US**:001-800-424-9300 / **Europe**:001-703-527-3887

**E-mail address** begel.sdsdesk@thermofisher.com

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

### SECTION 2. HAZARD IDENTIFICATION

**Physical State**  
Powder Solid

**Appearance**  
White

**Odor**  
Odorless

#### Emergency Overview

Harmful if swallowed. Harmful in contact with skin. Causes skin irritation. Causes serious eye irritation. Harmful if inhaled. May cause respiratory irritation. Hygroscopic.

#### Classification of the substance or mixture

|                                                    |            |
|----------------------------------------------------|------------|
| Acute Oral Toxicity                                | Category 4 |
| Acute Dermal Toxicity                              | Category 4 |
| Acute Inhalation Toxicity - Dusts and Mists        | Category 4 |
| Skin Corrosion/Irritation                          | Category 2 |
| Serious Eye Damage/Eye Irritation                  | Category 2 |
| Specific target organ toxicity - (single exposure) | Category 3 |

#### Label Elements



## Yttrium(III) fluoride

## Signal Word

## Warning

## Hazard Statements

H315 - Causes skin irritation

H319 - Causes serious eye irritation

H335 - May cause respiratory irritation

H302 + H312 + H332 - Harmful if swallowed, in contact with skin or if inhaled

## Precautionary Statements

## Prevention

P261 - Avoid breathing dust/fume/gas/mist/vapors/spray

P264 - Wash face, hands and any exposed skin thoroughly after handling

P270 - Do not eat, drink or smoke when using this product

P271 - Use only outdoors or in a well-ventilated area

P280 - Wear protective gloves/protective clothing/eye protection/face protection

## Response

P302 + P352 - IF ON SKIN: Wash with plenty of soap and water

P304 + P340 - IF INHALED: Remove person to fresh air and keep comfortable for breathing

P305 + P351 + P338 - IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing

P312 - Call a POISON CENTER or doctor if you feel unwell

P330 - Rinse mouth

P362 + P364 - Take off contaminated clothing and wash it before reuse

## Storage

P403 + P233 - Store in a well-ventilated place. Keep container tightly closed

## Disposal

P501 - Dispose of contents/ container to an approved waste disposal plant

## Physical and Chemical Hazards

Hygroscopic.

## Health Hazards

Harmful if swallowed. Harmful in contact with skin. Causes skin irritation. Causes serious eye irritation. Harmful if inhaled. May cause respiratory irritation.

## Environmental hazards

Contains no substances known to be hazardous to the environment or not degradable in waste water treatment plants. Is not likely mobile in the environment due its low water solubility. Spillage unlikely to penetrate soil.

This product does not contain any known or suspected endocrine disruptors.

## SECTION 3. COMPOSITION/INFORMATION ON INGREDIENTS

| Component              | CAS No     | Weight % |
|------------------------|------------|----------|
| Yttrium fluoride (YF3) | 13709-49-4 | 99.99    |

## SECTION 4. FIRST AID MEASURES

## Eye Contact

Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. Get medical attention.

## Skin Contact

Wash off immediately with soap and plenty of water while removing all contaminated clothes and shoes. Get medical attention.

## Inhalation

Remove from exposure, lie down. Remove to fresh air. If not breathing, give artificial respiration. Get medical attention.

## Ingestion

Clean mouth with water. Get medical attention.

## Most important symptoms and effects

## Yttrium(III) fluoride

No information available.

**Self-Protection of the First Aider**

Ensure that medical personnel are aware of the material(s) involved, take precautions to protect themselves and prevent spread of contamination.

**Notes to Physician**

Treat symptomatically.

**SECTION 5. FIRE-FIGHTING MEASURES****Suitable Extinguishing Media**

Substance is nonflammable; use agent most appropriate to extinguish surrounding fire.

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

No information available.

**Specific Hazards Arising from the Chemical**

Non-combustible.

**Protective Equipment and Precautions 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****Personal Precautions**

Ensure adequate ventilation.

**Environmental Precautions**

See Section 12 for additional Ecological Information.

**Methods for Containment and Clean Up**

Sweep up and shovel into suitable containers for disposal. Do not let this chemical enter the environment.

Refer to protective measures listed in Sections 8 and 13.

**SECTION 7. HANDLING AND STORAGE****Handling**

Avoid contact with skin and eyes. Do not breathe dust. Do not ingest. If swallowed then seek immediate medical assistance. Handle product only in closed system or provide appropriate exhaust ventilation.

**Storage**

Keep in a dry, cool and well-ventilated place. Keep container tightly closed.

**Specific Use(s)**

Use in laboratories

**SECTION 8. EXPOSURE CONTROLS/PERSONAL PROTECTION****Control Parameters**

| Component              | China | ACGIH TLV                                           | OSHA PEL                             | NIOSH                                                                                        |
|------------------------|-------|-----------------------------------------------------|--------------------------------------|----------------------------------------------------------------------------------------------|
| Yttrium fluoride (YF3) | -     | TWA: 1 mg/m <sup>3</sup> TWA: 2.5 mg/m <sup>3</sup> | (Vacated) TWA: 2.5 mg/m <sup>3</sup> | IDLH: 500 mg/m <sup>3</sup> IDLH: 250 mg/m <sup>3</sup><br>REL = 2.5 mg/m <sup>3</sup> (TWA) |

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|                        |           |                            |                | REL = 1 mg/m <sup>3</sup> (TWA)                                       |
|------------------------|-----------|----------------------------|----------------|-----------------------------------------------------------------------|
| Component              | Hong Kong | Thailand                   | European Union | The United Kingdom                                                    |
| Yttrium fluoride (YF3) | -         | TWA: 2.5 mg/m <sup>3</sup> |                | STEL: 7.5 mg/m <sup>3</sup> 15 min<br>TWA: 2.5 mg/m <sup>3</sup> 8 hr |

Legend

ACGIH - American Conference of Governmental Industrial Hygienists

OSHA - Occupational Safety and Health Administration

NIOSH: NIOSH - National Institute for Occupational Safety and Health

**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. MDHS14/3 General methods for sampling and gravimetric analysis of respirable and inhalable dust

**Exposure Controls****Engineering Measures**

Ensure adequate ventilation, especially in confined areas. 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

| Glove material | Breakthrough time | Glove thickness | EU standard | Glove comments        |
|----------------|-------------------|-----------------|-------------|-----------------------|
| Natural rubber | See manufacturers | -               | EN 374      | (minimum requirement) |
| Nitrile rubber | recommendations   |                 |             |                       |
| Neoprene       |                   |                 |             |                       |
| PVC            |                   |                 |             |                       |

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.

**Skin and body protection**

Wear appropriate protective gloves and clothing to prevent skin exposure

**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**

Use a NIOSH/MSHA or European Standard EN 136 approved respirator if exposure limits are exceeded or if irritation or other symptoms are experienced

**Recommended Filter type:** Particulates filter conforming to EN 143

**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.

**Recommended half mask:-** Particle filtering: EN149:2001  
When RPE is used a face piece Fit Test should be conducted

**Hygiene Measures**

Handle in accordance with good industrial hygiene and safety practice.

**Environmental exposure controls**

No information available.

## SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

|                                                |                          |                                          |
|------------------------------------------------|--------------------------|------------------------------------------|
| <b>Appearance</b>                              | White                    |                                          |
| <b>Physical State</b>                          | Powder Solid             |                                          |
| <b>Odor</b>                                    | Odorless                 |                                          |
| <b>Odor Threshold</b>                          | No data available        |                                          |
| <b>pH</b>                                      | No information available |                                          |
| <b>Melting Point/Range</b>                     | 1387 °C / 2528.6 °F      |                                          |
| <b>Softening Point</b>                         | No data available        |                                          |
| <b>Boiling Point/Range</b>                     | No information available |                                          |
| <b>Flash Point</b>                             | No information available | <b>Method -</b> No information available |
| <b>Evaporation Rate</b>                        | Not applicable           | Solid                                    |
| <b>Flammability (solid,gas)</b>                | No information available |                                          |
| <b>Explosion Limits</b>                        | No data available        |                                          |
| <b>Vapor Pressure</b>                          | No information available |                                          |
| <b>Vapor Density</b>                           | Not applicable           | Solid                                    |
| <b>Specific Gravity / Density</b>              | 4.010                    |                                          |
| <b>Bulk Density</b>                            | No data available        |                                          |
| <b>Water Solubility</b>                        | Insoluble                |                                          |
| <b>Solubility in other solvents</b>            | No information available |                                          |
| <b>Partition Coefficient (n-octanol/water)</b> |                          |                                          |
| <b>Autoignition Temperature</b>                | Not applicable           |                                          |
| <b>Decomposition Temperature</b>               | No data available        |                                          |
| <b>Viscosity</b>                               | Not applicable           | Solid                                    |
| <b>Explosive Properties</b>                    | No information available |                                          |
| <b>Oxidizing Properties</b>                    | No information available |                                          |
| <b>Molecular Formula</b>                       | F3 Y                     |                                          |
| <b>Molecular Weight</b>                        | 145.9                    |                                          |

## SECTION 10. STABILITY AND REACTIVITY

|                                         |                                                        |
|-----------------------------------------|--------------------------------------------------------|
| <b>Stability</b>                        | Hygroscopic.                                           |
| <b>Hazardous Reactions</b>              | No information available.                              |
| <b>Hazardous Polymerization</b>         | No information available.                              |
| <b>Conditions to Avoid</b>              | Incompatible products. Exposure to moist air or water. |
| <b>Materials to avoid</b>               | Strong oxidizing agents. Strong acids.                 |
| <b>Hazardous Decomposition Products</b> | Gaseous hydrogen fluoride (HF).                        |

## SECTION 11. TOXICOLOGICAL INFORMATION

## Product Information

|                                           |            |
|-------------------------------------------|------------|
| <b>(a) acute toxicity;</b>                |            |
| <b>(b) skin corrosion/irritation;</b>     | Category 2 |
| <b>(c) serious eye damage/irritation;</b> | Category 2 |

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|                                                   |                                                                |
|---------------------------------------------------|----------------------------------------------------------------|
| <b>(d) respiratory or skin sensitization;</b>     |                                                                |
| Respiratory                                       | No data available                                              |
| Skin                                              | No data available                                              |
| <b>(e) germ cell mutagenicity;</b>                | No data available                                              |
| <b>(f) carcinogenicity;</b>                       | No data available                                              |
|                                                   | There are no known carcinogenic chemicals in this product      |
| <b>(g) reproductive toxicity;</b>                 | No data available                                              |
| <b>(h) STOT-single exposure;</b>                  | Category 3                                                     |
| Results / Target organs                           | Respiratory system                                             |
| <b>(i) STOT-repeated exposure;</b>                | No data available                                              |
| Target Organs                                     | No information available.                                      |
| <b>(j) aspiration hazard;</b>                     | Not applicable                                                 |
|                                                   | Solid                                                          |
| <b>Other Adverse Effects</b>                      | The toxicological properties have not been fully investigated. |
| <b>Symptoms / effects, both acute and delayed</b> | No information available                                       |

## SECTION 12. ECOLOGICAL INFORMATION

|                                        |                                                                                                          |
|----------------------------------------|----------------------------------------------------------------------------------------------------------|
| <b>Ecotoxicity effects</b>             | Do not empty into drains.                                                                                |
| <b>Persistence and Degradability</b>   |                                                                                                          |
| Persistence                            | Insoluble in water.                                                                                      |
| Degradability                          | Not relevant for inorganic substances.                                                                   |
| <b>Bioaccumulative Potential</b>       | May have some potential to bioaccumulate                                                                 |
| <b>Mobility in soil</b>                | Spillage unlikely to penetrate soil Is not likely mobile in the environment due its low water solubility |
| <b>Endocrine Disruptor Information</b> | This product does not contain any known or suspected endocrine disruptors                                |
| <b>Persistent Organic Pollutant</b>    | This product does not contain any known or suspected substance                                           |
| <b>Ozone Depletion Potential</b>       | This product does not contain any known or suspected substance                                           |

## SECTION 13. DISPOSAL CONSIDERATIONS

|                                            |                                                                                                                                                                        |
|--------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Waste from Residues/Unused Products</b> | 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. |
| <b>Contaminated Packaging</b>              | Dispose of this container to hazardous or special waste collection point.                                                                                              |

**SAFETY DATA SHEET****Yttrium(III) fluoride**

**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.

**SECTION 14. TRANSPORT INFORMATION****Road and Rail Transport**

**UN-No** UN3288  
**Proper Shipping Name** Toxic solid, inorganic, n.o.s.  
**Hazard Class** 6.1  
**Packing Group** III

**IMDG/IMO**

**UN-No** UN3288  
**Proper Shipping Name** Toxic solid, inorganic, n.o.s.  
**Hazard Class** 6.1  
**Packing Group** III

**IATA**

**UN-No** UN3288  
**Proper Shipping Name** Toxic solid, inorganic, n.o.s.  
**Hazard Class** 6.1  
**Packing Group** III

**Special Precautions for User** No special precautions required

**SECTION 15. REGULATORY INFORMATION****International Inventories**

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

| Component              | The Inventory of Hazardous Chemicals (2015 Edition) | List of dangerous goods GB 12268 - 2012 | IECSC | EINECS    | TSCA | DSL | PICCS | ENCS | ISHL | AICS | KECL     |
|------------------------|-----------------------------------------------------|-----------------------------------------|-------|-----------|------|-----|-------|------|------|------|----------|
| Yttrium fluoride (YF3) | -                                                   | -                                       | X     | 237-257-5 | X    | X   | -     | X    | X    | X    | KE-35499 |

**National Regulations****SECTION 16. OTHER INFORMATION**

**Prepared By** Health, Safety and Environmental Department  
**Revision Date** 22-Jul-2026  
**Revision Summary** Not applicable.

**Training Advice**

Chemical hazard awareness training, incorporating labelling, Safety Data Sheets (SDS), Personal Protective Equipment (PPE) and hygiene.  
Use of personal protective equipment, covering appropriate selection, compatibility, breakthrough thresholds, care, maintenance, fit and standards.

## Yttrium(III) fluoride

First aid for chemical exposure, including the use of eye wash and safety showers.

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

**PNEC** - Predicted No Effect Concentration

**LD50** - Lethal Dose 50%

**EC50** - Effective Concentration 50%

**POW** - Partition coefficient Octanol:Water

**vPvB** - very Persistent, very Bioaccumulative

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

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

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

**BCF** - Bioconcentration factor

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

**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

**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**