



SECTION 1: IDENTIFICATION OF THE PRODUCT AND OF THE COMPANY

1.1 Product identifiers

Product Name : ACS Material Gamma-Aluminum Oxide Nanofibers (Al₂O₃)
Brand : ACS Material LLC
CAS-No. : 1344-28-1

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

Identified uses : Laboratory chemicals, Manufacture of substances

1.3 Details of the supplier of the safety data sheet

Company : ACS MATERIAL LLC
959 E Walnut St., Suite
100 Pasadena, CA
91106 USA
Telephone : +1 (866)-227-0656
Fax : +1 (781)-518-0284

1.4 Emergency telephone number

Emergency Phone #: +1 (866)-227-0656

SECTION 2: HAZARDS IDENTIFICATION

2.1 Classification of the substance or mixture

Not a hazardous substance or mixture.

2.2 GHS Label elements, including precautionary statements

Not a hazardous substance or mixture.

2.3 Hazards not otherwise classified (HNOC) or not covered by GHS – none

SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS

3.1 Substances

Substance name : Gamma-Aluminum Oxide Nanofibers (Al₂O₃)
CAS-No. : 1344-28-1
EC-No. : 215-691-6
Synonyms : Alumina, γ-Al₂O₃, Al₂O₃ nanofibers
Linear formula : Al₂O₃
Molecular weight : 101.96 g/mol

Hazardous ingredients



Components	Concentration(wt%)	CAS No.
Al ₂ O ₃	≤ 100 %	1344-28-1

For the full text of the phrases mentioned in this Section, see Section 16.

SECTION 4: FIRST AID MEASURES

4.1 Description of first aid measures

General advice

Move out of dangerous area.

If inhaled

If breathed in, move person into fresh air. If not breathing, give artificial respiration. Consult a physician.

In case of skin contact

Flush eyes with water as a precaution.

If swallowed

Never give anything by mouth to an unconscious person. Rinse mouth with water. Consult a physician.

4.2 Most important symptoms and effects, both acute and delayed

The most important known symptoms and effects are described in the labelling (see section 2.2) and/or in section 11.

4.3 Indication of any immediate medical attention and special treatment needed

No data available

SECTION 5: FIREFIGHTING MEASURES

5.1 Extinguishing media

Suitable extinguishing media

Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.

5.2 Special hazards arising from the substance or mixture

No data available

5.3 Advice for firefighters

Wear self-contained breathing apparatus for firefighting if necessary.

5.4 Further information

No data available

SECTION 6: ACCIDENTAL RELEASE MEASURES

6.1 Personal precautions, protective equipment and emergency procedures

Use personal protective equipment. Avoid dust formation. Avoid breathing vapours, mist or gas. Ensure adequate ventilation. Evacuate personnel to safe areas. Avoid breathing dust.

For personal protection see section 8.

**6.2 Environmental precautions**

No special environmental precautions required.

6.3 Methods and materials for containment and cleaning up

Pick up and arrange disposal without creating dust. Sweep up and shovel. Keep in suitable, closed containers for disposal.

6.4 Reference to other sections

For disposal see section 13.

SECTION 7: HANDLING AND STORAGE

7.1 Precautions for safe handling**Suitable extinguishing media**

Avoid formation of dust and aerosols. Provide appropriate exhaust ventilation at places where dust is formed. Normal measures for preventive fire protection. For precautions see section 2.2.

7.2 Conditions for safe storage, including any incompatibilities

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

7.3 Specific end use(s)

Apart from the uses mentioned in section 1.2 no other specific uses are stipulated.

SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1 Control parameters**Components with workplace control parameters****8.2 Exposure controls****Appropriate engineering controls**

Handle in accordance with good industrial hygiene and safety practice. Wash hands before breaks and at the end of workday.

8.3 Personal protective equipment**Eye/face protection**

Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU).

Skin protection

Handle with gloves. Gloves must be inspected prior to use. Use proper glove removal technique (without touching glove's outer surface) to avoid skin contact with this product. Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practices. Wash and dry hands.

Body Protection

Impervious clothing. The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace.

Respiratory protection

Respiratory protection is not required. Where protection from nuisance levels of dusts are



desired, use type N95 (US) or type P1 (EN 143) dust masks. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU).

Control of environmental exposure

No special environmental precautions required.

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

9.1 Information on basic physical and chemical properties

1) Appearance	Form: Powder
2) Odour	Odourless
3) Odour Threshold	No data available
4) pH	No data available
5) Melting point/freezing point	No data available
6) Initial boiling point and boiling range	No data available
7) Flash point	Not applicable
8) Evaporation rate	No data available
9) Flammability (solid, gas)	No data available
10) Upper/lower flammability or explosive limits	No data available
11) Vapour pressure	No data available
12) Vapour density	No data available
13) Relative density	No data available
14) Water solubility	No data available
15) Partition coefficient: n- octanol/water	No data available
16) Auto-ignition temperature	No data available
17) Decomposition temperature	No data available
18) Viscosity	No data available
19) Explosive properties	No data available
20) Oxidizing properties	No data available

9.2 Other safety information

No data available

SECTION 10: STABILITY AND REACTIVITY

10.1 Reactivity

No data available

10.2 Chemical stability

Stable under recommended storage conditions.

10.3 Possibility of hazardous reactions

No data available

10.4 Conditions to avoid



Exposure to moisture

10.5 Incompatible materials

Strong acids, Strong bases, Chlorine trifluoride, Ethylene oxide, Halogenated hydrocarbon, Oxygen difluoride, Sodium nitrate, Vinyl compounds, Oxygen, Nitrates, Halogens

10.6 Hazardous decomposition products

Other decomposition products - No data available

In the event of fire: see section 5.

SECTION 11: TOXICOLOGICAL INFORMATION

11.1 Information on toxicological effects

Acute toxicity

LD50 Oral - Rat - > 10,000 mg/kg
(OECD Test Guideline 401)

LC50 Inhalation - Rat - 4 h - > 2.6 mg/l (OECD Test Guideline 403)

Remarks: No significant adverse effects were reported

Dermal: No data available

No data available

Skin corrosion/irritation

Skin - Rabbit

Result: No skin irritation (OECD Test Guideline 404)

Serious eye damage/eye irritation

Eyes - Rabbit

Result: No eye irritation
(OECD Test Guideline 405)

Respiratory or skin sensitisation

Maximisation Test - Guinea pig

Result: Did not cause sensitisation on laboratory animals.

Germ cell mutagenicity

No data available

Carcinogenicity

IARC: No component of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.

NTP: No component of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.

OSHA: No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by OSHA.

Reproductive toxicity

No data available

Specific target organ toxicity - single exposure



Inhalation - May cause respiratory irritation.

Specific target organ toxicity - repeated exposure

No data available

Aspiration hazard

No data available

Additional Information

RTECS: BD1200000

Cough, chest pain, Difficulty in breathing, Gastrointestinal disturbance

To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated.

Liver - Irregularities - Based on Human Evidence Liver - Irregularities - Based on Human Evidence

SECTION 12: ECOLOGICAL INFORMATION

12.1 Toxicity

No toxicity at the limit of solubility

12.2 Persistence and degradability

The methods for determining biodegradability are not applicable to inorganic substances.

12.3 Bioaccumulative potential

Does not bioaccumulate

12.4 Mobility in soil

No data available

12.5 Results of PBT and vPvB assessment

PBT/vPvB assessment not available as chemical safety assessment not required/not conducted

12.6 Other adverse effects

No data available

SECTION 13: DISPOSAL CONSIDERATIONS

13.1 Waste treatment methods

Product

Offer surplus and non-recyclable solutions to a licensed disposal company. Contact a licensed professional waste disposal service to dispose of this material.

Contaminated packaging

Dispose of as unused product.

SECTION 14: TRANSPORT INFORMATION

14.1 DOT (US)

Not dangerous goods



- 14.2 IMDG**
Not dangerous goods
- 14.3 IATA**
Not dangerous goods

SECTION 15: REGULATORY INFORMATION

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

SARA 302 Components

No chemicals in this material are subject to the reporting requirements of SARA Title III, Section 302.

SARA 313 Components

The following components are subject to reporting levels established by SARA Title III, Section 313:

SARA 311/312 Hazardsc

Chronic Health Hazard

Massachusetts Right To Know Components

	CAS-No.	Revision Date
Aluminium oxide	1344-28-1	1994-04-01

Pennsylvania Right To Know Components

	CAS-No.	Revision Date
Aluminium oxide	1344-28-1	1994-04-01

New Jersey Right To Know Components

	CAS-No.	Revision Date
Aluminium oxide	1344-28-1	1994-04-01

California Prop. 65 Components

This product does not contain any chemicals known to State of California to cause cancer, birth defects, or any other reproductive harm.

SECTION 16: OTHER INFORMATION

HMIS Rating

Health hazard:	0
Chronic Health Hazard:	0
Flammability:	0
Physical Hazard	0

NFPA Rating

Health hazard:	0
Fire Hazard:	0
Reactivity Hazard:	0



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