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File No.	BT-QR-QM-041	Institution	Ya'an Bestry Performance Materials Co., Ltd.

Material Safety Data Sheet of Spherical Alumina

1. Chemical Product and Company Identification

Chinese Name of Product: 球形氧化铝粉

Commercial Name of Product: Spherical Alumina Powder

Specification: BAK series\TPA series\HTA series

Supplier Name: Ya'an Bestry Performance Materials Co., Ltd.

Address: Ya'an Industrial Zone, Ya'an City, Sichuan, P.R.China

Phone: +0086-0835-3233173

Fax: +0086-0835-3236846

Website: www.bestry-tech.com

Supplier Emergency Phone: +0086-0835-3233173

National Emergency Phone: +0086-0532-83889090

2. Compositions/Ingredients

Chemical Compositions	Contents (%)
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Aluminium Oxide	≥99.0
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Molecular Formula: Al₂O₃ **CAS No.:** 1344-28-1

3. Hazards Identifications

Hazard Category	Specific target organ systemic toxicity - Single exposure - Level 2 (Respiratory tract irritation) Specific target organ systemic toxicity - Repeated exposure - Level 1 (Lung)
Invasive Routes	Skin/Eye contact, Inhalation, Ingestion
Potential Health Hazards	(1) Non-abnormal toxicity, but not eatable; (2) Pulmonary fibrosis chronic inhalation has been reported; (3) If inhaled, irritation in the mucosal tissue and upper respiratory tract will be resulted;
Environment Hazards	Earth contacting will alter soil constituent, but no harm to air or water;
Combustion and Explosion Conditions	Non-flammable and non-explosive;

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4. First Aid Measures

Skin Contacting	Take off contaminated clothes and flush exposed area with water until all powder is removed;
Eye Contacting	(1) Immediately flush eyes with large amounts of lukewarm water or physiological saline at least 15 minutes, lifting eyelids to facilitate irrigation; (2) Immediately call a physician;
Inhalation	(1) If inhaled, immediately remove to fresh air; (2) If breathing difficultly, give an oxygen therapy; (3) If breathing stopped, give an artificial respiration or closed cardiac massage at once; (4) Immediately call a physician;
Ingestion	(1) If ingested, drinking plenty of lukewarm water to vomit; (2) Immediately call a physician;

5. Fire Fighting Measures

Combustion Characteristics	Non-flammable;
Harmful Combustion Products	N/A;
Fire Fighting Methods	(1) If surroundings catching fire, using the corresponding fire extinguishing agent to deal with; (2) Soda-acid fire extinguisher forbidden;

6. Accidental Release Measures

Emergency Action	(1) Evacuate the unprotected staffs from the release polluted places to upper wind position, and isolate the unrelated staffs and the polluted zone; (2) The handling staffs should wear specialized protective suit or self-contained breathing apparatus, keeping ventilation, and wipe off the release source, then transfer them in container to safe place; (3) If large amounts release, cover powders with plastic cloth or sail cloth, keeping ventilation then collecting and transferring to safe place;
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7. Handling and Storage

Handling Considerations	(1) Operators should be professional trained, and working under relative SOP; (2) Working with self-contained breathing apparatus, chemical safety goggles, electrostatic shielding clothes and rubber gloves is strongly recommended; (3) loading and handling slightly with powders will avoid their package damaging and dust flying;
Storage Considerations	(1) Keep in sealed container, stored in dry and ventilated warehouse; (2) Suitable powder leakage collecting container should be prepared for accidental release handling in warehouse;

8. Exposure Controls and Personnel Protection

MAC(mg/m³)	6
Monitoring Method	Powder concentration Tester
Engineering Control	Operating only in fully closed and good ventilation environment;
Respiratory Protection	(1) While the concentration in air over the standard consistency($\geq 6\text{mg/m}^3$), should use the self-contained breathing filter mask; (2) For rescue or escape, should use air-purifying respirator;
Eye Protection	Use chemical safety goggles when necessary;
Skin Protection	(1) General job protective suit will provide adequate protection; (2) Use electrostatic shielding clothes when necessary;
Hand Protection	(1) General job protective glove will provide adequate protection; (2) Use rubber glove when necessary;
Other Protection	(1) Washing hands before eating and drinking; (2) Washing body and changing clothes after handling; (3) Warning sign are recommended for areas under exposure to powder; (4) Physical examination annually is necessary, if long time contacting;

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9. Physical Properties

Appearance	White powder, no featuring peculiar odor;
Particle size (D50, μm)	70.3
pH(25 $^{\circ}\text{C}$)	6~8 (10g/100ml H_2O)
Melt Point($^{\circ}\text{C}$)	2010-2050
Boil Point($^{\circ}\text{C}$)	2980
Ture Density (g/cm^3)	3.7~4.0
EC($\mu\text{S}/\text{cm}$, 25 $^{\circ}\text{C}$)	≤ 20 (10g/100ml H_2O)
S.S.A. (m^2/g)	0.1~0.5
Moisture (%)	≤ 0.2
Solubility	At room temperature, insoluble in water, acid, soda;

10. Stability and Reactivity

Stability	Stable, no reactivity with acid and soda (at room temperature);
Taboo	Strong oxidant
Avoid Contacting	Moisture laden air;
Hazardous Polymerization	Will not occur;
Hazardous Decomposition Products	Will not occur;

11. Toxicological Information

Non-abnormal toxicity	Unknown;
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12. Ecological Information

Ecological Effect	Unknown;
Other Effect	Unknown;

13. Disposal Consideration

Waste Classification	Not a hazardous waste, industrial solid waste;
Waste Disposal	(1) Recycle; (2) Bury safely, but must comply with federal, state, and local disposal or discharge laws;

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14. Transportation Information

Dangerous Goods Code	N/A
Transportation Considerations	(1) Transporting should be fully complied with appointed route, forbidden to stop in residential or populated area; (2) Packages remain well and intact, while shipping or loading, also container should be no leaking, no collapsing, no falling, no damaging; (3) Mixture transportation with oxidant or dangerous chemicals is forbidden; (4) Sunshine-proof, water-proof and high temperature-proof, while transportation; (5) Vehicle cleaning thoroughly after transportation;

15. Regulatory Information

Regulatory Requirements	“Health standard for dusts of aluminum, aluminum oxide and aluminum alloys in the air of workplace” (GB 11726-89) has shown alumina concentration in workplace is less than 6mg/m ³ ;
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16. Other Information

References	(1) “General rule for classification and hazard communication of chemicals” (GB13690-2009) (2) “General rules for preparation of chemical safety data sheet” (GB16483-2000)
Edit Date	3/20/2017
Editor	Qiang Yang
Auditor	Hao Li
Approver	Shani Li
Others	The above information is supplied by Ya'an Bestry Performance Materials Co., Ltd.