CLIP, Chemical Laboratory Information Profile

"Only when you know the hazards, can you take the necessary precautionary measures."

Aluminum oxide Al_2O_3 CAS No.: 1344-28-1

Synonyms: Alumina

Physical Properties

White amorphous solid, insoluble in water.

Vapor pressure at 20 °C:	negligible
Melting point:	2050 °C
Boiling point:	3500 °C

Exposure Limits

OSHA PEL:	15 mg/m^3, total dust
	5 mg/m^3, respirable fraction
ACGIH TLV:	10 mg/m^3

Hazardous Characteristics

Overall toxicity	Flammability	Destructive to skin/eye	Absorbed through skin	Sensitizer?	Self-reactive?	Incompatible with:
1	0	1	0	No	No	Inter halogens such as chloride trifluoride, halocarbon compounds, many monomers that can be catalytically polymerized.*

0: None (or very low); 1: Slight; 2: Moderate; 3: High; 4: Severe.

***Reactivity Hazards**

Aluminum oxide is an adsorbent and catalyzes a variety of reactions that occur when monomers are adsorbed or when two or more species are adsorbed together on aluminum oxide surfaces. Not infrequently, the so catalyzed reactions are rapid and can be violent. See Bretherick's *Handbook of Reactive Chemical Hazards* for details and for other incompatibilities.

Cited as known to be or reasonably anticipated to be carcinogenic in NTP-9? No

Identified as a reproductive toxin in Frazier and Hage, *Reproductive Hazards of the Workplace*? No

Typical symptoms of acute exposures:

In the eyes, redness, discomfort. If inhaled, coughing, shortness of breath.

Principal target organ(s) or system(s):

Eyes, lungs.

Storage Requirements

Store with other chemicals in a cool, dry, well-ventilated general storage location.

Additional Remarks

Except for the descriptions of the adsorbent properties of amorphous aluminum oxide, above, the information given here also applies to corundum, a very hard crystalline form of aluminum oxide, typically used in the manufacture of grinding wheels and other abrasive materials such as sandpaper.

Notes

ReadMe

This Chemical Laboratory Information Profile is ***not*** a Material Safety Data Sheet. It is a brief summary for teachers and their students that describes some of the hazards of this chemical as it is typically used in laboratories. On the basis of your knowledge of these hazards and before using or handling this chemical, *you need to select the precautions and first-aid procedures to be followed.* For that information as well as for other useful information, refer to Material Safety Data Sheets, container labels, and references in the scientific literature that pertain to this chemical.

Reproductive Toxins

Some substances that in fact are reproductive toxins are not yet recognized as such. For the best readily available and up-to-date information, refer to "DART/ETIC". See the TOXNET home page at *http://www.sis.nlm.nih.gov* and click on "Toxicology search". *Note that some of the data in DART/ETIC have not been peer-reviewed.* See also Linda M. Frazier and Marvin L. Hage, *Reproductive Hazards of the Workplace*; Wiley, 1998; and T. H. Shepard, *Catalog of Teratogenic Agents*, 9th ed.; Johns Hopkins University Press, 1998.

Abbreviations

ACGIH TLV—American Conference of Governmental Industrial Hygienists–Threshold Limit Value. C—Ceiling. CAS—Chemical Abstracts Service. mg/m^3—milligrams per cubic meter. NA—Not applicable. NE—Not established. NI—No information. NTP-9—National Toxicology Program, Ninth Annual Report on Carcinogens. OSHA PEL—Occupational Safety and Health Administration–Permissible Exposure Limit. ppm—parts per million. STEL/C—Short-term exposure limit and ceiling.

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