

CLIP, Chemical Laboratory Information Profile

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

Sodium

Na

CAS No.: 7440-23-5

Synonym: Natrium

Physical Properties		Exposure Limits	
Soft, shiny metal; oxide forms rapidly when the surface is exposed to air.		OSHA PEL:	NE
Vapor pressure at 400 °C:	1.4 Torr	ACGIH TLV:	NE
Melting point:	98 °C		
Boiling point:	983 °C		

Hazardous Characteristics

Overall toxicity	Flammability	Destructive to skin/eye	Absorbed through skin	Sensitizer?	Self-reactive?	Incompatible with:
3	3	4	0	No	No	Water; ethyl alcohol; hydrochloric, hydrofluoric, sulfuric, and nitric acids; halogenated hydrocarbons; hydroxylamine; mercury; metal and non-metal oxides and halides; carbon; sulfur; selenium; tellurium; oxidizing agents.*

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

*Reactivity Hazards

Reaction with water and with ethyl alcohol is vigorous and produces corrosive NaOH or C₂H₅ONa and H₂, which is flammable. Reaction with hydrochloric, hydrofluoric, and sulfuric acids is explosive and with nitric acid it can also cause ignition of the sodium. The reaction with some halogenated hydrocarbons produces shock-sensitive compounds. Reaction with hydroxylamine causes ignition of the sodium. Reaction with mercury to form an amalgam is violently exothermic. Reaction with metal and non-metal oxides and halides is also exothermic, often violently so. Reaction with some non-metals such as carbon, sulfur, selenium, and tellurium is exothermic and can be violent. Reaction with strong and with mild oxidizing agents often is violently exothermic; mixtures of sodium with these oxidizers are usually shock sensitive. 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:

Skin: redness, pain, severe burns. Eyes: pain, blurred vision, blindness.

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

Skin, eyes.

Storage Requirements

Keep in a cool, dry, well-ventilated and locked location that is **not** protected by a water sprinkling system. Store sodium by immersion in kerosene in a sealed glass container which is itself placed in an unbreakable leak-proof outer container. The quantity of kerosene should be sufficient to keep the sodium immersed if the inner glass container is broken. Inspect stored sodium at least once every month to ensure its integrity.

Additional Remarks

Finely divided sodium is pyrophoric (catches fire spontaneously if exposed to air). Subject to EPA regulations, quantities of sodium no larger than 10 g may be destroyed by immersion in isopropyl alcohol containing no more than 2% water.

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 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/m³—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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