



WADCO Corporation

Operating the Hanford Engineering Development Laboratory for the USAEC

P. O. Box 1970 Richland, Washington 99352

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October 4, 1971

Dr. J. R. Totter, Director  
Division of Biology and Medicine  
U. S. Atomic Energy Commission  
Washington, D. C. 20545

Dear Dr. Totter:

Treatment of Sodium Burns

Dr. J. D. Goldstein's letter of September 9, 1971, addressed to John J. Taylor, has been referred to this office for Hanford Engineering Development Laboratory (HEDL) reply.

Our reply is in the form of an Operating and Policy Guide, attached, generated by the Hanford Environmental Health Foundation (HEHF). HEHF is the contractor to the U. S. Atomic Energy Commission which provides medical services to Hanford contractors. The procedures developed are applicable to all HEDL laboratories wherein alkali metals are handled.

Should you require further information, please write us.

Sincerely yours,

*J. J. Cadwell*

J. J. Cadwell, Manager  
ENGINEERING SERVICES AND SAFETY

JJC:msc

Enclosure

cc: J. D. Goldstein, M. D. - Div. of Biology and Medicine, USAEC  
T. A. Nemzek - USAEC-RDT, Ass't. Director for PNP  
W. H. Esselman - WADCO  
J. J. Taylor - Westinghouse Electric Corporation

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HANFORD ENVIRONMENTAL  
HEALTH FOUNDATION

OPERATING AND POLICY GUIDE

ISSUED BY Manager, Occupational Medicine	SUBJECT ALKALI METALS (sodium, potassium, NaK, lithium)	CLASSIFICATION Department
		SECTION Occupational Med.

Employees who handle alkali metals must be thoroughly instructed as to hazards, control measures and the mandatory first aid procedures required to help reduce severity of burns from these metals.

EMERGENCY PROCEDURE FOR SKIN CONTACT	Brush or scrape off metal particles quickly, if possible, then immediately flood or immerse skin area with water for a lengthy time. Then proceed to Medical Aid Station, or call the station, or have someone else call the station.
EMERGENCY PROCEDURE FOR EYE CONTACT	Nothing is more important than the speed with which water irrigation is started. Continue irrigation for at least 15 minutes. Lift upper and lower eyelids frequently to insure complete washing. Never attempt the use of neutralizing solutions in the eyes. Have someone else call the Medical Aid Station as soon as possible but do not delay or stop flushing the eye to make the call.
INHALATION EXPOSURE	Fires involving alkali metals produce caustic fumes which may result in irritation of eyes or the respiratory tract. Remove the exposed from fumes to fresh air and transport to Medical Aid Station as soon as possible.
HAZARD ANALYSIS	When no moisture is present, contact of dry alkali metal with the skin may cause no damage. No acute or chronic systemic effects are recognized. On contact with moisture, sodium liberates hydrogen and enough heat is produced so that this gas may be ignited. The immediate result is a severe thermal burn; but as burning continues, the forming of sodium hydroxide may add injury in the form of an alkali burn to the original thermal burn. All factors considered, the immediate flushing of skin and eyes with water presently offer the best chances for reducing tissue damage. This is the only exception to the rule that contact between sodium and water should be avoided.
REFERENCES:	HAMPEL, Clifford A. Editor; <u>The Encyclopedia of the Chemical Elements</u> ; Reinhold Book Corp., New York; 1968. NATIONAL Safety Council; <u>Accident Prevention Manual for Industrial Operations</u> ; 6th Edition; 1969. SAX, N. Irving; <u>Dangerous Properties of Industrial Materials</u> ; Reinhold Book Corporation; New York; 1958.

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