

VII. REACTIVITY DATA

Stability: 1 Stable Unstable

Conditions to avoid: Strong oxidizing agents.

Hazardous decomposition products (including combustion products): Trace amounts of carbon monoxide (CO), carbon dioxide (CO<sub>2</sub>) and sulfur dioxide (SO<sub>2</sub>)

Hazardous polymerization: May occur Will not occur

VIII. SPILL, LEAK, AND DISPOSAL PROCEDURES

Spill response procedures include employee protection measures: During removal, asbestos should be wetted, vacuumed and residue placed in impermeable bags for disposal.

Preparing wastes for disposal (container type, neutralization, etc): Waste should be collected and disposed of in sealed impermeable bags or closed containers. Refer to CFR 1910.1001 (h) (2).

NOTE: Dispose of all wastes in accordance with federal, state and local regulations.

VIII. SPECIAL HANDLING INFORMATION

Ventilation and engineering controls: provide adequate ventilation if PEL/TLV is exceeded.

Respiratory protection (type): unnecessary under normal use. However, approved (non-disposable) respirators are necessary if permissible exposure levels (PEL/TLV) are exceeded.

Eye protection (type): unnecessary under normal use.

Gloves (specify material): normally not required.

Other clothing and equipment: unnecessary under normal conditions.

Work practices, hygienic practices: daily wetted vacuuming of workplace with HEPA filter. No smoking, eating or drinking in work areas.

Other handling and storage requirements: store material in dry, ventilated areas.

Protective measures during maintenance of contaminated equipment: Do not drill, saw, grind, sand or wetting down. Approved respirators should be worn during operations which will release asbestos fibers in excess of PEL/TLV limits.

The following enclosed sheets are based on data provided by the manufacturer and are intended for general information. The accuracy of the data is not guaranteed. The user should consult the manufacturer for specific information. The user should also consult the Material Safety Data Sheet for the product for more detailed information.

U.S. DEPARTMENT OF LABOR  
Occupational Safety and Health Administration  
**MATERIAL SAFETY DATA SHEET**

Requires under USDL Safety and Health Regulations for Safe Handling, Storage, and Shipping 29 CFR 1915, 1916, 1917

SECTION I

MANUFACTURER'S NAME: Duracell Inc. 203-785-4155  
 ADDRESS: 1000 Duracell Drive, Danbury, CT 06880 914-391-7000  
 CHEMICAL NAME: Battery  
 OTHER NAMES: duracell alkaline battery  
 CAS NO.: 14294-85-2

SECTION II - HAZARDOUS INGREDIENTS

INGREDIENTS	%	TLV (ppm)	TLV (mg/m <sup>3</sup> )
PAINTS, PRESERVATIVES, & SOLVENTS			
ADHESIVES			
VEHICLE			
SOLVENTS			
ADHESIVES			
OTHERS			

HAZARDOUS MIXTURES OF OTHER LIQUIDS, SOLIDS, OR GASES

NAME	TLV (ppm)	TLV (mg/m <sup>3</sup> )
KOH		
MnO <sub>2</sub>		
Zn		
Hg		

SECTION III - PHYSICAL DATA

PROPERTY	VALUE
BOILING POINT (°F)	2409 (KOH) 674 (H <sub>2</sub> O)
VAPOR PRESSURE (mm Hg)	0.0001 (KOH) 17.5 (H <sub>2</sub> O)
VAPOR DENSITY (air=1)	3.4 (KOH) 0.9 (H <sub>2</sub> O)
SOLUBILITY IN WATER	soluble
APPEARANCE AND ODOR	white powder

SECTION IV - FIRE AND EXPLOSION HAZARD DATA

PROPERTY	VALUE
Flash point (closed cup)	NA
Extinguishing media	Water
Special fire fighting procedures	Use self-contained breathing apparatus
Other information	Do not use water on battery

SECTION V - HEALTH HAZARD DATA

~~Section II~~  
 KOH is caustic. Skin contact can cause burns. Eye contact may cause permanent injury.  
 Emergency and first aid procedures:  
 If leakage from battery contacts the skin, flush immediately with water. For eye contact, flush with cool water for 15 minutes and see physician at once.

SECTION VI - REACTIVITY DATA

STABILITY	UNSTABLE	CONDITIONS TO AVOID
	STABLE	X
INGREDIENTS (Identify to MSDS)		
HAZARDOUS DECOMPOSITION PRODUCTS		
When heated battery may emit hazardous vapors of KOH & H <sub>2</sub> .		
HAZARDOUS POLYMERIZATION	MAY OCCUR	CONDITIONS TO AVOID
	WILL NOT OCCUR	X

SECTION VII - SPILL OR LEAK PROCEDURES

ITEMS TO BE TAKEN IN CASE MATERIAL IS SPILLED OR SPILLED  
 Avoid skin and eye contact.  
 WASTE DISPOSAL METHOD  
 Do not incinerate since battery may explode.

SECTION VIII - SPECIAL PROTECTION INFORMATION

VENTILATION	LOCAL EXHAUST	GENERAL
	Mechanical (General)	OTHER
PROTECTIVE CLOVES		
EYE PROTECTIVE		
OTHER PROTECTIVE EQUIPMENT		

SECTION IX - SPECIAL PRECAUTIONS

PRECAUTIONS TO BE TAKEN IN SHIPPING AND STORING  
 When handling leaking batteries use neoprene, rubber or latex nitrile gloves.  
 Store at room temperature and in a dry place.  
 Install batteries in accordance with equipment instructions. Do not recharge or dispose of in fire. Replace all batteries in equipment at the same time. Do not mix battery systems of different types such as alkaline and zinc carbon batteries.  
 Do not carry batteries loose in your pocket or carrying bag.  
 Check batteries periodically when in use. See attached guide to Form OSHA-20 Proper Battery Selection and Care.

MATERIAL SAFETY DATA SHEET (MSDS)  
 SECTION I - PRODUCT IDENTIFICATION  
 This MSDS supplied for: DUNIRON  
 DUNIRON  
 425 N. FINDLAY ST.  
 DAYTON, OH 45404

EMERGENCY TELEPHONE: (513) 326-4000

VENDOR NAME AND ADDRESS: THE DUNIRON CO., INC.  
 425 N. FINDLAY ST.  
 DAYTON, OH 45404

FIRE HAZARD CLASS: HEALTH: 0 FIRE: 0 REACTIVITY: 0  
 THE FOURTH DIAMOND: WELDING, CUTTING, OR GRINDING ON THIS CASTING WILL GENERATE TOXIC DUST AND FUMES

INGREDIENT	CMS NO.	PERCENT	TLV	REL
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Carbon	7440-44-0	0.83-0.93	N/E	N/E
Silicon	7440-21-3	14.2-14.45	10 mg/cu.m 5 mg/cu.m as dust	15 mg/cu.m 5 mg/cu.m as dust
Manganese	7439-96-5	0.5-1.10	1 mg/cu.m as fume	as dust
Nickel	7440-02-0	<1.0	1 mg/cu.m	1 mg/cu.m
Chromium (hexavalent)	7440-47-3	<0.5	5 mg/cu.m 10 mg/cu.m	1 mg/cu.m N/E
Koilyphenum	7439-98-7	<0.5	10 mg/cu.m	15 mg/cu.m
Sulfur	7704-34-9	<0.01	N/E	N/E
Phosphorus	7723-14-0	<0.10	1 mg/cu.m	1 mg/cu.m
Copper	7440-50-8	<0.12	2 mg/cu.m 1 mg/cu.m as dust	1 mg/cu.m 1 mg/cu.m as dust
Iron	7439-89-6	Balance	5 mg/cu.m as fume	10 mg/cu.m as fume

Water insoluble hexavalent chromium is classified as a human carcinogen by the American Conference of Governmental Industrial Hygienists (ACGIH). Approximately 68% of the total chromium (including fume) is hexavalent, and only 3% of that is insoluble. Considering the small amount of chromium in the casting, overexposure to hexavalent chromium is not likely. (There is no hexavalent chromium in the alloy or its dust).

N/E means none ascertainable. N/A means not applicable.  
 N/D means no data available.