

Lead (sheet)  
Lead Metal (balls)  
Lead Metal (shot)

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\*\*\*LEAD\*\*

\*\*\*LEAD\*\*  
\*\*\*LEAD\*\*  
\*\*\*LEAD\*\*

MATERIAL SAFETY DATA SHEET

FISHER SCIENTIFIC  
CHEMICAL DIVISION  
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SUBSTANCE IDENTIFICATION

CAS-NUMBER 7439-92-1

SUBSTANCE: \*\*\*LEAD\*\*

TRADE NAMES/SYNONYMS:

C.I. PIGMENT METAL 4; C.I. 77575; LEAD FLAKE; KS-4; LEAD S 2; SI; SO;  
PLUMBUM; SO; PB-S 100; LEAD ELEMENT; L-18; L-24; L-29; L-27; T-134; PB;

CHEMICAL FAMILY:  
METAL

MOLECULAR FORMULA: PB

MOLECULAR WEIGHT: 207.19

CERCLA RATINGS (SCALE 0-3): HEALTH=3 FIRE=0 REACTIVITY=0 PERSISTENCE=3  
NFPA RATINGS (SCALE 0-4): HEALTH=3 FIRE=0 REACTIVITY=0

COMPONENTS AND CONTAMINANTS

COMPONENT: LEAD PERCENT: 99.8

OTHER CONTAMINANTS: BISMUTH, COPPER, ARSENIC, ANTIMONY, TIN, IRON,  
SILVER, ZINC

EXPOSURE LIMITS:

LEAD, INORGANIC FUMES AND DUST (AS PB):

50 UG(PB)/M3 OSHA 8 HOUR TWA

30 UG(PB)/M3 OSHA 8 HOUR TWA ACTION LEVEL

IF AN EMPLOYEE IS EXPOSED TO LEAD FOR MORE THAN 8 HOURS PER DAY THE

FOLLOWING FORMULA IS USED:

MAXIMUM PERMISSIBLE LIMIT (IN UG/M3) = 400 DIVIDED BY HOURS WORKED IN THE DAY

0.15 MG(PB)/M3 ACGIH TWA

<0.10 MG(PB)/M3 NIOSH RECOMMENDED 10 HOUR TWA

1 POUND CERCLA SECTION 103 REPORTABLE QUANTITY

SUBJECT TO SARA SECTION 313 ANNUAL TOXIC CHEMICAL RELEASE REPORTING  
SUBJECT TO CALIFORNIA PROPOSITION 65 CANCER AND/OR REPRODUCTIVE TOXICITY  
WARNING AND RELEASE REQUIREMENTS- (FEBRUARY 27, 1987)

PHYSICAL DATA

DESCRIPTION: BLUISH-WHITE, SILVERY GRAY, HEAVY, MALLEABLE METAL

BOILING POINT: 3164 F (1740 C) MELTING POINT: 622 F (328 C)

SPECIFIC GRAVITY: 11.3 VAPOR PRESSURE: 1.3 MMHG @ 970 C

SOLUBILITY IN WATER: INSOLUBLE

SOLVENT SOLUBILITY: SOLUBLE IN NITRIC ACID, HOT CONCENTRATED SULFURIC ACID

HARDNESS: 1.5 MOHS

FIRE AND EXPLOSION DATA

FIRE AND EXPLOSION HAZARD:

NEGLECTIBLE FIRE HAZARD IN METALLIC FORM; HOWEVER, POSSIBLE FIRE AND EXPLOSION  
HAZARD IN DUST FORM WHEN EXPOSED TO HEAT OR FLAME.

FIREFIGHTING MEDIA:

DRY CHEMICAL, CARBON DIOXIDE, HALON, WATER SPRAY OR STANDARD FOAM  
(1987 EMERGENCY RESPONSE GUIDEBOOK, DOT P 5800.4).

FOR LARGER FIRES, USE WATER SPRAY, FOG OR STANDARD FOAM  
(1987 EMERGENCY RESPONSE GUIDEBOOK, DOT P 5800.4).

FIREFIGHTING:

NO ACUTE HAZARD. MOVE CONTAINER FROM FIRE AREA IF POSSIBLE. AVOID BREATHING  
VAPORS OR DUSTS; KEEP UPWIND.

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USE AGENTS SUITABLE FOR TYPE OF SURROUNDING FIRE. AVOID BREATHING HAZARDOUS  
VAPORS. KEEP UPWIND.

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#### TOXICITY

##### LEAD:

450 MG/KG/6 YEAR ORAL-WOMAN TDLO; 10 UG/M3 INHALATION-HUMAN TCLO; 1000 MG/KG  
INTRAPERITONEAL-RAT LDLO; 160 MG/KG ORAL-PIGEON LDLO; MUTAGENIC DATA (RTECS);  
REPRODUCTIVE EFFECTS DATA (RTECS).  
CARCINOGEN STATUS: HUMAN INADEQUATE EVIDENCE, ANIMAL SUFFICIENT EVIDENCE  
(IARC CLASS-2B FOR INORGANIC LEAD COMPOUNDS). RENAL TUMORS WERE PRODUCED IN  
ANIMALS BY LEAD ACETATE, SUBACETATE AND PHOSPHATE GIVEN ORALLY, SUBCUTANEOUSLY  
OR INTRAPERITONEALLY. NO EVALUATION COULD BE MADE OF THE CARCINOGENICITY OF  
POWDERED LEAD.

LEAD IS A NEUROTOXIN, NEPHROTOXIN, TERATOGEN, AND A CUMULATIVE POISON WHICH  
MAY ALSO AFFECT THE BLOOD, HEART, ENDOCRINE, AND IMMUNE SYSTEMS. PERSONS  
WITH NERVOUS SYSTEM OR GASTROINTESTINAL DISORDERS, ANEMIA, OR CHRONIC  
BRONCHITIS MAY BE AT AN INCREASED RISK FROM EXPOSURE.

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#### HEALTH EFFECTS AND FIRST AID

##### INHALATION:

##### LEAD:

##### NEUROTOXIN/NEPHROTOXIN/TERATOGEN.

ACUTE EXPOSURE- INHALATION OF LARGE AMOUNTS OF LEAD MAY CAUSE A METALLIC  
TASTE, THIRST, A BURNING SENSATION IN THE MOUTH AND THROAT, SALIVATION,  
ABDOMINAL PAIN WITH SEVERE COLIC, VOMITING, BLOODY DIARRHEA, CONSTIPATION,  
FATIGUE, SLEEP DISTURBANCES, DULLNESS, RESTLESSNESS, IRRITABILITY, MEMORY  
LOSS, LOSS OF CONCENTRATION, DELIRIUM, OLIGURIA OFTEN WITH HEMATURIA AND  
ALBUMINURIA, ENCEPHALOPATHY WITH VISUAL FAILURE, PARESTHESIAS, MUSCLE  
PAIN AND WEAKNESS, CONVULSIONS, AND PARALYSIS. DEATH MAY RESULT FROM  
CARDIORESPIRATORY ARREST OR SHOCK. SURVIVORS OF ACUTE EXPOSURE MAY  
EXPERIENCE THE ONSET OF CHRONIC INTOXICATION. LIVER EFFECTS MAY INCLUDE  
ENLARGEMENT AND TENDERNESS AND JAUNDICE. THE FATAL DOSE OF ABSORBED LEAD  
IS APPROXIMATELY 0.5 GRAMS. PATHOLOGICAL FINDINGS INCLUDE GASTROINTESTINAL  
INFLAMMATION AND RENAL TUBULAR DEGENERATION. METAL FUME FEVER, AN  
INFLUENZA-LIKE ILLNESS, MAY OCCUR DUE TO THE INHALATION OF FRESHLY FORMED  
METAL OXIDE PARTICLES SIZED BELOW 1.5 MICRONS AND USUALLY BETWEEN  
0.02-0.05 MICRONS. SYMPTOMS MAY BE DELAYED 4-12 HOURS AND BEGIN WITH A  
SUDDEN ONSET OF THIRST AND A SWEET, METALLIC OR FOUL TASTE IN THE MOUTH.  
OTHER SYMPTOMS MAY INCLUDE UPPER RESPIRATORY TRACT IRRITATION ACCOMPANIED  
BY COUGHING AND A DRYNESS OF THE MUCOUS MEMBRANES, LASSITUDE AND A  
GENERALIZED FEELING OF MALAISE, FEVER, CHILLS, MUSCULAR PAIN, MILD TO  
SEVERE HEADACHE, NAUSEA, OCCASIONAL VOMITING, EXAGGERATED MENTAL ACTIVITY,  
PROFUSE SWEATING, EXCESSIVE URINATION, DIARRHEA, AND PROSTRATION MAY ALSO  
OCCUR. TOLERANCE TO FUMES DEVELOPS RAPIDLY, BUT IS QUICKLY LOST. ALL  
SYMPTOMS USUALLY SUBSIDE WITHIN 24-36 HOURS.

CHRONIC EXPOSURE- REPEATED OR PROLONGED EXPOSURE TO LOW LEVELS OF LEAD MAY  
RESULT IN AN ACCUMULATION IN BODY TISSUES AND EXERT ADVERSE EFFECTS ON THE  
BLOOD, NERVOUS SYSTEMS, HEART, ENDOCRINE AND IMMUNE SYSTEMS, KIDNEYS, AND  
REPRODUCTION. EARLY STAGES OF LEAD POISONING, "PLUMBISM", MAY BE EVIDENCED  
BY PALLOR, ANOREXIA, WEIGHT LOSS, CONSTIPATION, APATHY OR IRRITABILITY,  
OCCASIONAL VOMITING, FATIGUE, HEADACHE, WEAKNESS, METALLIC TASTE IN THE  
MOUTH, GINGIVAL LEAD LINE IN PERSONS WITH POOR DENTAL HYGIENE, AND ANEMIA.  
LOSS OF RECENTLY DEVELOPED MOTOR SKILLS IS GENERALLY OBSERVED ONLY IN  
CHILDREN. MORE ADVANCED STAGES OF POISONING MAY BE CHARACTERIZED BY  
INTERMITTENT VOMITING, IRRITABILITY AND NERVOUSNESS, MYALGIA OF THE ARMS,  
LEGS, JOINTS, AND ABDOMEN, PARALYSIS OF THE EXTENSOR MUSCLES OF THE  
ARMS AND LEGS WITH WRIST AND/OR FOOT DROP, AND INTESTINAL SPASMS  
WHICH CAUSE SEVERE ABDOMINAL PAIN. SEVERE "PLUMBISM" MAY  
RESULT IN PERSISTENT VOMITING, ATAXIA, PERIODS OF STUPOR OR LETHARGY,  
ENCEPHALOPATHY WITH VISUAL DISTURBANCES WHICH MAY PROGRESS TO OPTIC  
NEURITIS AND ATROPHY, HYPERTENSION, PAPILLEDEMA, CRANIAL NERVE PARALYSIS,  
DELIRIUM, CONVULSIONS, AND COMA. NEUROLOGIC SEQUELAE MAY INCLUDE MENTAL  
RETARDATION, SEIZURES, CEREBRAL PALSY, AND DYSTONIA MUSCULORAM DEFORMANS.  
IRREVERSIBLE KIDNEY DAMAGE HAS BEEN ASSOCIATED WITH INDUSTRIAL EXPOSURE.  
REPRODUCTIVE EFFECTS HAVE BEEN EXHIBITED IN BOTH MALES AND FEMALES.  
PATERAL EFFECTS MAY INCLUDE DECREASED SEX DRIVE, IMPOTENCE, STERILITY,  
AND ADVERSE EFFECTS ON THE SPERM WHICH MAY INCREASE THE RISK OF BIRTH  
DEFECTS. MATERNAL EFFECTS MAY INCLUDE MISCARRIAGE AND STILLBIRTHS IN  
EXPOSED WOMEN OR WOMEN WHOSE HUSBANDS WERE EXPOSED, ABORTION, STERILITY  
OR DECREASED FERTILITY, AND ABNORMAL MENSTRUAL CYCLES. LEAD CROSSES THE  
PLACENTA AND MAY AFFECT THE FETUS CAUSING BIRTH DEFECTS, MENTAL  
RETARDATION, BEHAVIORAL DISORDERS, AND DEATH DURING THE FIRST YEAR OF  
CHILDHOOD. ANIMAL STUDIES INDICATE THAT REPRODUCTIVE EFFECTS MAY BE  
ADDITIVE IF BOTH PARENTS ARE EXPOSED TO LEAD.

FIRST AID- REMOVE FROM EXPOSURE AREA TO FRESH AIR IMMEDIATELY. IF BREATHING  
HAS STOPPED, PERFORM ARTIFICIAL RESPIRATION. KEEP PERSON WARM AND AT REST.  
TREAT SYMPTOMATICALLY AND SUPPORTIVELY. GET MEDICAL ATTENTION IMMEDIATELY.

##### SKIN CONTACT:

##### LEAD:

ACUTE EXPOSURE- DIRECT CONTACT WITH LEAD POWDERS OR DUST MAY CAUSE  
IRRITATION. LEAD IS NOT ABSORBED THROUGH THE SKIN, BUT MAY BE TRANSFERRED  
TO THE MOUTH INADVERTENTLY BY CIGARETTES, CHEWING TOBACCO, FOOD, OR  
MAKE-UP.

CHRONIC EXPOSURE- REPEATED OR PROLONGED EXPOSURE TO THE POWDER OR DUST MAY  
RESULT IN DERMATITIS. SYSTEMIC TOXICITY MAY DEVELOP IF LEAD IS TRANSFERRED  
TO THE MOUTH BY CIGARETTES, CHEWING TOBACCO, FOOD, OR MAKE-UP.

FIRST AID- REMOVE CONTAMINATED CLOTHING AND SHOES IMMEDIATELY. WASH AFFECTED  
AREA WITH SOAP OR MILD DETERGENT AND LARGE AMOUNTS OF WATER UNTIL NO  
EVIDENCE OF CHEMICAL REMAINS (APPROXIMATELY 15-20 MINUTES). GET MEDICAL  
ATTENTION IMMEDIATELY.

**\*\*LEAD\*\***

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**EYE CONTACT:**

**LEAD:**

ACUTE EXPOSURE- LEAD DUST OR POWDERS MAY CAUSE IRRITATION. METALLIC LEAD PARTICLES MAY CAUSE AN INFLAMMATORY FOREIGN BODY REACTION; INJURY IS GENERALLY THOUGHT TO BE MECHANICAL AND NOT TOXIC.  
CHRONIC EXPOSURE- REPEATED OR PROLONGED EXPOSURE MAY CAUSE CONJUNCTIVITIS.

**FIRST AID-** WASH EYES IMMEDIATELY WITH LARGE AMOUNTS OF WATER OR NORMAL SALINE, OCCASIONALLY LIFTING UPPER AND LOWER LIDS, UNTIL NO EVIDENCE OF CHEMICAL REMAINS (APPROXIMATELY 15-20 MINUTES). GET MEDICAL ATTENTION IMMEDIATELY.

**INGESTION:**

**LEAD:**

**NEUROTOXIN/NEPHROTOXIN/TERATOGEN.**

ACUTE EXPOSURE- ABSORPTION OF LARGE AMOUNTS OF LEAD FROM THE INTESTINAL TRACT MAY CAUSE SYSTEMIC EFFECTS AS DETAILED IN ACUTE INHALATION. THE FATAL DOSE OF ABSORBED LEAD IS APPROXIMATELY 0.5 GRAMS.  
CHRONIC EXPOSURE- REPEATED OR PROLONGED EXPOSURE TO LOW LEVELS OF LEAD MAY RESULT IN AN ACCUMULATION IN BODY TISSUES AND ADVERSE EFFECTS ON THE KIDNEYS, HEART, AND BLOOD, AND ON THE NERVOUS, REPRODUCTIVE, ENDOCRINE, AND IMMUNE SYSTEMS AS DETAILED IN CHRONIC INHALATION.

**FIRST AID-** DO NOT INDUCE VOMITING. QUALIFIED MEDICAL PERSONNEL SHOULD REMOVE CHEMICAL BY GASTRIC LAVAGE OR CATHARSIS. ACTIVATED CHARCOAL IS USEFUL. GET MEDICAL ATTENTION IMMEDIATELY.

**ANTIDOTE:**

THE FOLLOWING ANTIDOTE HAS BEEN RECOMMENDED. HOWEVER, THE DECISION AS TO WHETHER THE SEVERITY OF POISONING REQUIRES ADMINISTRATION OF ANY ANTIDOTE AND ACTUAL DOSE REQUIRED SHOULD BE MADE BY QUALIFIED MEDICAL PERSONNEL.

**FOR LEAD POISONING:**

INITIATE URINE FLOW FIRST. GIVE 10% DEXTROSE IN WATER INTRAVENOUSLY, 10-20 ML/KG BODY WEIGHT, OVER A PERIOD OF 1-2 HOURS. IF URINE FLOW DOES NOT START, GIVE MANNITOL, 20% SOLUTION, 5-10 ML/KG BODY WEIGHT INTRAVENOUSLY OVER 20 MINUTES. FLUID MUST BE LIMITED TO REQUIREMENTS AND CATHETERIZATION MAY BE NECESSARY IN COMA. DAILY URINE OUTPUT SHOULD BE 350-500 ML/M<sup>2</sup>/24 HOURS. EXCESSIVE FLUIDS FURTHER INCREASE CEREBRAL EDEMA.  
FOR ADULTS WITH ACUTE ENCEPHALOPATHY, GIVE DIMERCAPROL, 4 MG/KG, INTRAMUSCULARLY EVERY 4 HOURS FOR 30 DOSES. BEGINNING 4 HOURS LATER, GIVE CALCIUM DISODIUM EDETATE AT A SEPARATE INJECTION SITE, 12.5 MG/KG INTRAMUSCULARLY EVERY 4 HOURS AS A 20% SOLUTION, WITH 0.5% PROCAINE ADDED, FOR A TOTAL OF 30 DOSES. IF SIGNIFICANT IMPROVEMENT HAS NOT OCCURRED BY THE FOURTH DAY, INCREASE THE NUMBER OF INJECTIONS BY 10 FOR EACH DRUG.  
FOR SYMPTOMATIC ADULTS, THE COURSE OF DIMERCAPROL AND CALCIUM DISODIUM EDETATE CAN BE SHORTENED OR CALCIUM DISODIUM EDETATE ONLY CAN BE GIVEN IN A DOSAGE OF 50 MG/KG INTRAVENOUSLY AS 0.5% SOLUTION IN 5% DEXTROSE IN WATER OR NORMAL SALINE BY INFUSION OVER NOT LESS THAN 8 HOURS FOR NOT MORE THAN 5 DAYS. FOLLOW WITH PENICILLAMINE, 500-750 MG/DAY, ORALLY FOR 1-2 MONTHS OR UNTIL URINE LEAD LEVELS DROPS BELOW 0.3 MG/24 HOURS (DREISBACH, HANDBOOK OF POISONING, 11TH ED.). ANTIDOTE SHOULD BE ADMINISTERED BY QUALIFIED MEDICAL PERSONNEL.

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**REACTIVITY**

**REACTIVITY:**

STABLE UNDER NORMAL TEMPERATURES AND PRESSURES.

**INCOMPATIBILITIES:**

**LEAD:**

AMMONIUM NITRATE: VIOLENT OR EXPLOSIVE REACTION.  
CHLORINE TRIFLUORIDE: VIOLENT REACTION.  
DISODIUM ACETYLIDE: TRITURATION IN MORTAR MAY BE VIOLENT AND LIBERATE CARBON.  
HYDROGEN PEROXIDE (52% OR GREATER): VIOLENT DECOMPOSITION.  
HYDROGEN PEROXIDE (60% SOLUTION) AND TRIOXANE: SPONTANEOUSLY DETONABLE.  
METALS (ACTIVE): INCOMPATIBLE.  
NITRIC ACID: LEAD-CONTAINING RUBBER MAY IGNITE.  
OXIDIZERS (STRONG): INCOMPATIBLE.  
SODIUM AZIDE: FORMS LEAD AZIDE AND COPPER AZIDE IN COPPER PIPE.  
SODIUM CARBIDE: VIGOROUS REACTION.  
SULFURIC ACID (HOT): REACTS.  
ZIRCONIUM-LEAD ALLOYS: IGNITION ON IMPACT.

**DECOMPOSITION:**

THERMAL DECOMPOSITION PRODUCTS ARE TOXIC OXIDES OF LEAD.

**POLYMERIZATION:**

HAZARDOUS POLYMERIZATION HAS NOT BEEN REPORTED TO OCCUR UNDER NORMAL TEMPERATURES AND PRESSURES.

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**STORAGE AND DISPOSAL**

OBSERVE ALL FEDERAL, STATE AND LOCAL REGULATIONS WHEN STORING OR DISPOSING OF THIS SUBSTANCE. FOR ASSISTANCE, CONTACT THE DISTRICT DIRECTOR OF THE ENVIRONMENTAL PROTECTION AGENCY.

**\*\*STORAGE\*\***

STORE AWAY FROM INCOMPATIBLE SUBSTANCES.



XXLEADXX

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CONDITIONS TO AVOID

MAY BURN BUT DOES NOT IGNITE READILY.

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SPILL AND LEAK PROCEDURES

OCCUPATIONAL SPILL:  
DO NOT TOUCH SPILLED MATERIAL. STOP LEAK IF YOU CAN DO IT WITHOUT RISK. FOR SMALL SPILLS, TAKE UP WITH SAND OR OTHER ABSORBENT MATERIAL AND PLACE INTO CONTAINERS FOR LATER DISPOSAL. FOR SMALL DRY SPILLS, WITH A CLEAN SHOVEL PLACE MATERIAL INTO CLEAN, DRY CONTAINER AND COVER. MOVE CONTAINERS FROM SPILL AREA. FOR LARGER SPILLS, DIKE FAR AHEAD OF SPILL FOR LATER DISPOSAL. KEEP UNNECESSARY PEOPLE AWAY. ISOLATE HAZARD AREA AND DENY ENTRY.

RESIDUE SHOULD BE CLEANED UP USING A HIGH-EFFICIENCY PARTICULATE FILTER VACUUM.

REPORTABLE QUANTITY (RQ): 1 POUND  
THE SUPERFUND AMENDMENTS AND REAUTHORIZATION ACT (SARA) SECTION 304 REQUIRES THAT A RELEASE EQUAL TO OR GREATER THAN THE REPORTABLE QUANTITY FOR THIS SUBSTANCE BE IMMEDIATELY REPORTED TO THE LOCAL EMERGENCY PLANNING COMMITTEE AND THE STATE EMERGENCY RESPONSE COMMISSION (40 CFR 335.40). IF THE RELEASE OF THIS SUBSTANCE IS REPORTABLE UNDER CERCLA SECTION 103, THE NATIONAL RESPONSE CENTER MUST BE NOTIFIED IMMEDIATELY AT (800) 424-8802 OR (202) 426-2675 IN THE METROPOLITAN WASHINGTON, D. C. AREA (40 CFR 302.6).

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PROTECTIVE EQUIPMENT

VENTILATION:  
PROVIDE LOCAL EXHAUST OR PROCESS ENCLOSURE VENTILATION TO MEET PUBLISHED EXPOSURE LIMITS.

LEAD (ELEMENTAL, INORGANIC, AND SOAPS):  
VENTILATION SHOULD MEET THE REQUIREMENTS IN 29CFR1910.1025(E).

RESPIRATOR:  
THE FOLLOWING RESPIRATORS ARE THE MINIMUM LEGAL REQUIREMENTS AS SET FORTH BY THE OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION FOUND IN 29 CFR1910, SUBPART Z.

RESPIRATORY PROTECTION FOR LEAD AEROSOLS

AIRBORNE CONCENTRATION OF LEAD OR  
CONDITION OF USE

NOT IN EXCESS OF 0.5 MG/M3 (10X PEL)

NOT IN EXCESS OF 2.5 MG/M3 (50X PEL)

NOT IN EXCESS OF 50 MG/M3 (1000X PEL)

NOT IN EXCESS OF 100 MG/M3

GREATER THAN 100 MG/M3, UNKNOWN  
CONCENTRATIONS OR FIREFIGHTING

REQUIRED RESPIRATOR

HALF-MASK, AIR PURIFYING  
RESPIRATOR EQUIPPED WITH  
HIGH-EFFICIENCY FILTERS.

FULL FACEPIECE, AIR-PURIFYING  
RESPIRATOR WITH HIGH EFFICIENCY  
FILTERS.

ANY POWERED AIR-PURIFYING  
RESPIRATOR WITH HIGH EFFICIENCY  
FILTERS;

OR  
HALF-MASK SUPPLIED-AIR RESPIRATOR  
OPERATED IN POSITIVE-PRESSURE  
MODE.

SUPPLIED-AIR RESPIRATORS WITH  
FULL FACEPIECE, HOOD OR HELMET OR  
SUIT, OPERATED IN POSITIVE  
PRESSURE MODE.

FULL FACEPIECE, SELF-CONTAINED  
BREATHING APPARATUS OPERATED IN  
POSITIVE-PRESSURE MODE.

(RESPIRATORS SPECIFIED FOR HIGHER CONCENTRATIONS CAN BE USED AT LOWER CONCENTRATIONS OF LEAD).  
(FULL FACEPIECE IS REQUIRED IF THE LEAD AEROSOLS CAUSE EYE OR SKIN IRRITATION AT THE USE CONCENTRATIONS.)  
(A HIGH EFFICIENCY PARTICULATE FILTER MEANS 99.97% EFFICIENT AGAINST 0.3 MICRON PARTICLES.)

THE FOLLOWING RESPIRATORS AND MAXIMUM USE CONCENTRATIONS ARE RECOMMENDATIONS BY THE U.S. DEPARTMENT OF HEALTH AND HUMAN SERVICES, NIOSH POCKET GUIDE TO CHEMICAL HAZARDS OR NIOSH CRITERIA DOCUMENTS.  
THE SPECIFIC RESPIRATOR SELECTED MUST BE BASED ON CONTAMINATION LEVELS FOUND IN THE WORK PLACE AND BE JOINTLY APPROVED BY THE NATIONAL INSTITUTE OF OCCUPATIONAL SAFETY AND HEALTH AND THE MINE SAFETY AND HEALTH ADMINISTRATION.

LEAD, INORGANIC FUMES AND DUSTS (AS PB):

0.50 MG(PB)/M3- ANY SUPPLIED-AIR RESPIRATOR.  
ANY AIR-PURIFYING RESPIRATOR WITH A HIGH-EFFICIENCY  
PARTICULATE FILTER.  
ANY SELF-CONTAINED BREATHING APPARATUS.

1.25 MG(PB)/M3- ANY POWERED AIR-PURIFYING RESPIRATOR WITH A HIGH-EFFICIENCY  
PARTICULATE FILTER.  
ANY SUPPLIED-AIR RESPIRATOR OPERATED IN A CONTINUOUS FLOW  
MODE.

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2.50 MG(PB)/M3- ANY AIR-PURIFYING FULL FACEPIECE RESPIRATOR WITH A HIGH-EFFICIENCY PARTICULATE FILTER.  
ANY POWERED AIR-PURIFYING RESPIRATOR WITH A TIGHT-FITTING FACEPIECE AND A HIGH-EFFICIENCY PARTICULATE FILTER.  
ANY SELF-CONTAINED BREATHING APPARATUS WITH A FULL FACEPIECE.  
ANY SUPPLIED-AIR RESPIRATOR WITH A FULL FACEPIECE.  
ANY SUPPLIED-AIR RESPIRATOR WITH A TIGHT-FITTING FACEPIECE OPERATED IN A CONTINUOUS FLOW MODE.

50.0 MG(PB)/M3- ANY SUPPLIED-AIR RESPIRATOR WITH A HALF-MASK AND OPERATED IN A PRESSURE-DEMAND OR OTHER POSITIVE PRESSURE MODE.

100.0 MG(PB)/M3- ANY SUPPLIED-AIR RESPIRATOR WITH A FULL FACEPIECE AND OPERATED IN A PRESSURE-DEMAND OR OTHER POSITIVE PRESSURE MODE.

ESCAPE- ANY AIR-PURIFYING FULL FACEPIECE RESPIRATOR WITH A HIGH-EFFICIENCY PARTICULATE FILTER.  
ANY APPROPRIATE ESCAPE-TYPE SELF-CONTAINED BREATHING APPARATUS.

FOR FIREFIGHTING AND OTHER IMMEDIATELY DANGEROUS TO LIFE OR HEALTH CONDITIONS:

SELF-CONTAINED BREATHING APPARATUS WITH FULL FACEPIECE OPERATED IN PRESSURE DEMAND OR OTHER POSITIVE PRESSURE MODE.

SUPPLIED-AIR RESPIRATOR WITH FULL FACEPIECE AND OPERATED IN PRESSURE-DEMAND OR OTHER POSITIVE PRESSURE MODE IN COMBINATION WITH AN AUXILIARY SELF-CONTAINED BREATHING APPARATUS OPERATED IN PRESSURE-DEMAND OR OTHER POSITIVE PRESSURE MODE.

CLOTHING:

EMPLOYEE MUST WEAR APPROPRIATE PROTECTIVE (IMPERVIOUS) CLOTHING AND EQUIPMENT TO PREVENT REPEATED OR PROLONGED SKIN CONTACT WITH THIS SUBSTANCE.

LEAD (ELEMENTAL, INORGANIC, AND SOAPS):

PROTECTIVE CLOTHING SHOULD MEET THE REQUIREMENTS FOR PROTECTIVE WORK CLOTHING AND EQUIPMENT IN 29CFR1910.1025(G).

GLOVES:

EMPLOYEE MUST WEAR APPROPRIATE PROTECTIVE GLOVES TO PREVENT CONTACT WITH THIS SUBSTANCE.

LEAD (ELEMENTAL, INORGANIC & SOAPS):

PROTECTIVE GLOVES SHOULD MEET THE REQUIREMENTS FOR PROTECTIVE WORK CLOTHING AND EQUIPMENT IN 29CFR1910.1025(G).

EYE PROTECTION:

EMPLOYEE MUST WEAR SPLASH-PROOF OR DUST-RESISTANT SAFETY GOGGLES TO PREVENT EYE CONTACT WITH THIS SUBSTANCE. CONTACT LENSES SHOULD NOT BE WORN.

LEAD (ELEMENTAL, INORGANIC, AND SOAPS):

PROTECTIVE EYE EQUIPMENT SHOULD MEET THE REQUIREMENTS FOR PROTECTIVE WORK CLOTHING AND EQUIPMENT IN 29CFR1910.1025(G).

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