

***NICKELOUS CHLORIDE HEXAHYDRATE**

PAGE 01 OF 03

***NICKELOUS CHLORIDE HEXAHYDRATE**
***NICKELOUS CHLORIDE HEXAHYDRATE**
***NICKELOUS CHLORIDE HEXAHYDRATE**

MATERIAL SAFETY DATA SHEET

FISHER SCIENTIFIC
CHEMICAL DIVISION
1 REAGENT LANE
FAIR LAWN NJ 07410
(201) 796-7100

EMERGENCY CONTACTS:
GASTON L. PILLORI: (201) 796-7100
AFTER BUSINESS HOURS; HOLIDAYS:
(201) 796-7523
CHEMTREC ASSISTANCE: (800) 429-9300

THE INFORMATION BELOW IS BELIEVED TO BE ACCURATE AND REPRESENTS THE BEST INFORMATION CURRENTLY AVAILABLE TO US. HOWEVER, WE MAKE NO WARRANTY OF MERCHANTABILITY OR ANY OTHER WARRANTY, EXPRESS OR IMPLIED, WITH RESPECT TO SUCH INFORMATION, AND WE ASSUME NO LIABILITY RESULTING FROM ITS USE. USERS SHOULD MAKE THEIR OWN INVESTIGATIONS TO DETERMINE THE SUITABILITY OF THE INFORMATION FOR THEIR PARTICULAR PURPOSES.

SUBSTANCE IDENTIFICATION

CAS-NUMBER 7791-20-0

SUBSTANCE: ***NICKELOUS CHLORIDE HEXAHYDRATE**

TRADE NAMES/SYNONYMS:
NICKEL(II) CHLORIDE HEXAHYDRATE (1:2:6); NICKEL DICHLORIDE HEXAHYDRATE;
NICKEL CHLORIDE HEXAHYDRATE; STCC 4966364; NA 9139; N-53; N-54;

CHEMICAL FAMILY:
INORGANIC SALT

MOLECULAR FORMULA: CL₂-NI-6H₂O

MOLECULAR WEIGHT: 237.73

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: NICKELOUS CHLORIDE HEXAHYDRATE PERCENT: 100

OTHER CONTAMINANTS: NONE

EXPOSURE LIMITS:
NICKEL, SOLUBLE COMPOUNDS (AS NI):
0.1 MG/M3 OSHA TWA
0.1 MG/M3 ACGIH TWA
15 UG/M3 NIOSH RECOMMENDED 10 HOUR TWA

SUBJECT TO SARA SECTION 313 ANNUAL TOXIC CHEMICAL RELEASE REPORTING

PHYSICAL DATA

DESCRIPTION: GREEN DELIQUESCENT CRYSTALS OR MONOCLINIC CRYSTALLINE POWDER.

BOILING POINT: SUBLIMES MELTING POINT: SUBLIMES SPECIFIC GRAVITY: 3.6

PH: ACIDIC IN SOLUTION SOLUBILITY IN WATER: SOLUBLE

SOLVENT SOLUBILITY: ALCOHOL, AMMONIUM HYDROXIDE

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:
MOVE CONTAINER FROM FIRE AREA IF POSSIBLE. DO NOT SCATTER SPILLED MATERIAL WITH HIGH PRESSURE WATER STREAMS. DIKE FIRE CONTROL WATER FOR LATER DISPOSAL (1987 EMERGENCY RESPONSE GUIDEBOOK, DOT P 5800.4, GUIDE PAGE 31).

USE AGENT SUITABLE FOR TYPE SURROUNDING FIRE. AVOID BREATHING HAZARDOUS VAPORS OR DUSTS, KEEP UPWIND.

TRANSPORTATION DATA

DEPARTMENT OF TRANSPORTATION HAZARD CLASSIFICATION 49CFR172.101:
ORM-E

DEPARTMENT OF TRANSPORTATION LABELING REQUIREMENTS 49CFR172.101 AND 172.402:
NONE

DEPARTMENT OF TRANSPORTATION PACKAGING REQUIREMENTS: 49CFR173.510
EXCEPTIONS: NONE

TOXICITY

NICKEL CHLORIDE:
ANHYDROUS: 105 MG/KG ORAL-RAT LD50; 26 MG/KG INTRAPERITONEAL-MOUSE LD50;
10 MG/KG INTRAVENOUS-DOG LD50; 27 MG/KG INTRAMUSCULAR-RABBIT LD50; 20,597
UG/KG INTRAPERITONEAL-RAT LD50; MUTAGENIC DATA (RTECS); REPRODUCTIVE EFFECTS
DATA (RTECS).
HEXAHYDRATE: 175 MG/KG ORAL-RAT LD50; 40 MG/KG INTRAVENOUS-DOG LD50;
48 MG/KG INTRAPERITONEAL-MOUSE LD50; MUTAGENIC DATA (RTECS).
CARCINOGEN STATUS: HUMAN SUFFICIENT EVIDENCE (IARC CLASS 1). EPIDEMIOLOGICAL
STUDIES CONCLUSIVELY DEMONSTRATE AN EXCESS RISK OF CANCER OF THE NASAL
CAVITY AND LUNG IN WORKERS IN NICKEL REFINERIES. IT IS LIKELY THAT NICKEL
IN SOME FORM(S) IS CARCINOGENIC TO MAN.
NICKEL CHLORIDE IS TOXIC, AND IS AN EYE AND MUCOUS MEMBRANE IRRITANT AND
SKIN SENSITIZER.

HEALTH EFFECTS AND FIRST AID

INHALATION:
NICKEL CHLORIDE:
IRRITANT.

ACUTE EXPOSURE- MAY CAUSE IRRITATION OF THE MUCOUS MEMBRANES OF THE UPPER
RESPIRATORY TRACT.
CHRONIC EXPOSURE- NICKEL CHLORIDE MAY CAUSE HYPERPLASIA OF THE BRONCHIOLAR
AND BRONCHIAL EPITHELIUM WITH PERIBRONCHIAL LYMPHOCYTIC INFILTRATION. IN
HUMANS IT IS PROBABLE THAT AFTER PROLONGED EXPOSURE, NICKEL IN SOME FORM
IS CARCINOGENIC. DUST AND FUMES HAVE PRODUCED LUNG AND NASAL TISSUE
CARCINOMAS.

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:
NICKEL CHLORIDE:
SENSITIZER.

ACUTE EXPOSURE- CONTACT WITH NICKEL COMPOUNDS MAY CAUSE SENSITIZATION
DERMATITIS, "NICKEL ITCH", CHARACTERIZED BY PRURITIS, ERYTHEMATOUS OR
FOLLICULAR ERUPTIONS, FOLLOWED BY SUPERFICIAL ULCERS WHICH DISCHARGE AND
BECOME ENCRUSTED OR ECZEMATOUS MAY BE DELAYED 7 DAYS. IN CHRONIC STAGES,
PIGMENTED OR UNPIGMENTED PLAQUES MAY BE FORMED.
CHRONIC EXPOSURE- PROLONGED OR REPEATED EXPOSURE TO NICKEL AND NICKEL
COMPOUNDS MAY CAUSE SENSITIZATION DERMATITIS.

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.

EYE CONTACT:
NICKEL CHLORIDE:
IRRITANT.

ACUTE EXPOSURE- CONTACT MAY CAUSE IRRITATION.
CHRONIC EXPOSURE- PROLONGED OR REPEATED 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:
NICKEL CHLORIDE:
TOXIC.

ACUTE EXPOSURE- INGESTION MAY CAUSE GASTROINTESTINAL IRRITATION, VOMITING,
DIARRHEA, AND DEATH, WHICH MAY BE DELAYED FOR 24 HOURS OR MORE. OTHER
SYSTEMIC EFFECTS FROM INGESTION OF NICKEL COMPOUNDS MAY INCLUDE MYOCARDIAL
WEAKNESS, CAPILLARY DAMAGE IN THE BRAIN AND ADRENALS, RENAL INJURY, AND
CENTRAL NERVOUS SYSTEM DEPRESSION.
CHRONIC EXPOSURE- NO HUMAN DATA AVAILABLE. 100 MG/KG IN THE DRINKING WATER
OF RATS CAUSED LETHARGY, ATAXIA, IRREGULAR BREATHING, COOL BODY
TEMPERATURE, SALIVATION AND DISCOLORED EXTREMITIES. ADVERSE MATERNAL AND
FETAL EFFECTS WERE NOTED WHEN ADMINISTERED TO PREGNANT RATS AND MICE.

FIRST AID- TREAT SYMPTOMATICALLY AND SUPPORTIVELY. GET MEDICAL ATTENTION
IMMEDIATELY.

ANTIDOTE:
NO SPECIFIC ANTIDOTE. TREAT SYMPTOMATICALLY AND SUPPORTIVELY.

REACTIVITY

REACTIVITY:
STABLE UNDER NORMAL TEMPERATURES AND PRESSURES.

INCOMPATIBILITIES:
NICKEL CHLORIDE:
POTASSIUM: PRODUCES STRONG EXPLOSION ON IMPACT.
NITRIC ACID: DECOMPOSES TO EMIT TOXIC FUMES.
STRONG ACIDS, SULFUR: DECOMPOSES TO EMIT TOXIC FUMES.
WOOD, OTHER COMBUSTIBLES: DECOMPOSES.

****NICKELOUS CHLORIDE HEXAHYDRATE****

PAGE 03 OF 03

DECOMPOSITION:
MAY FORM TOXIC AND HIGHLY FLAMMABLE NICKEL CARBONYL UNDER THERMAL DECOMPOSITION.

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

CONDITIONS TO AVOID

NONE REPORTED.

SPILL AND LEAK PROCEDURES

OCCUPATIONAL SPILL:
FOR LARGE SPILLS, SWEEP UP WITH A MINIMUM OF DUSTING AND PLACE INTO SUITABLE CLEAN, DRY CONTAINERS FOR RECLAMATION OR LATER DISPOSAL.

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

PROTECTIVE EQUIPMENT

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

RESPIRATOR:
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; OR DEPARTMENT OF LABOR, 29CFR1910 SUBPART Z.
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.

AT ANY DETECTABLE CONCENTRATION:

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

ESCAPE- AIR-PURIFYING FULL FACEPIECE RESPIRATOR WITH HIGH-EFFICIENCY PARTICULATE FILTER.
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.

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

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.

AUTHORIZED - FISHER SCIENTIFIC GROUP, INC.
CREATION DATE: 02/05/85 REVISION DATE: 04/04/89

-ADDITIONAL INFORMATION-

THE INFORMATION BELOW IS BELIEVED TO BE ACCURATE AND REPRESENTS THE BEST INFORMATION CURRENTLY AVAILABLE TO US. HOWEVER, WE MAKE NO WARRANTY OF MERCHANTABILITY OR ANY OTHER WARRANTY, EXPRESS OR IMPLIED, WITH RESPECT TO SUCH INFORMATION, AND WE ASSUME NO LIABILITY RESULTING FROM ITS USE. USERS SHOULD MAKE THEIR OWN INVESTIGATIONS TO DETERMINE THE SUITABILITY OF THE INFORMATION FOR THEIR PARTICULAR PURPOSES.