

# NICKEL FORMATE

NFM

CAUTIONARY RESPONSE INFORMATION				4. FIRE HAZARDS	7. SHIPPING INFORMATION
Common Synonyms Nickel formate dihydrate	Solid	Green	Odorless	<p><b>4.1 Flash Point:</b> Not flammable</p> <p><b>4.2 Flammable Limits in Air:</b> Not flammable</p> <p><b>4.3 Fire Extinguishing Agents:</b> Not pertinent</p> <p><b>4.4 Fire Extinguishing Agents Not to Be Used:</b> Not pertinent</p> <p><b>4.5 Special Hazards of Combustion Products:</b> Irritating formic acid vapors may form in fire.</p> <p><b>4.6 Behavior in Fire:</b> Currently not available</p> <p><b>4.7 Auto Ignition Temperature:</b> Not pertinent</p> <p><b>4.8 Electrical Hazards:</b> Not pertinent</p> <p><b>4.9 Burning Rate:</b> Not pertinent</p> <p><b>4.10 Adiabatic Flame Temperature:</b> Currently not available</p> <p><b>4.11 Stoichiometric Air to Fuel Ratio:</b> Not pertinent</p> <p><b>4.12 Flame Temperature:</b> Currently not available</p> <p><b>4.13 Combustion Molar Ratio (Reactant to Product):</b> Not pertinent.</p> <p><b>4.14 Minimum Oxygen Concentration for Combustion (MOCC):</b> Not listed</p>	<p><b>7.1 Grades of Purity:</b> Commercial</p> <p><b>7.2 Storage Temperature:</b> Ambient</p> <p><b>7.3 Inert Atmosphere:</b> No requirement</p> <p><b>7.4 Venting:</b> Open</p> <p><b>7.5 IMO Pollution Category:</b> Currently not available</p> <p><b>7.6 Ship Type:</b> Currently not available</p> <p><b>7.7 Barge Hull Type:</b> Currently not available</p>
<b>Fire</b>	Not flammable.				<b>8. HAZARD CLASSIFICATIONS</b>
<b>Exposure</b>	CALL FOR MEDICAL AID. DUST Irritating to eyes, nose and throat. If inhaled will cause coughing or difficult breathing. If in eyes, hold eyelids open and flush with plenty of water. If breathing has stopped, give artificial respiration. If breathing is difficult, give oxygen.  SOLID Irritating to skin and eyes. If swallowed will cause nausea and vomiting. Remove contaminated clothing and shoes. Flush affected areas with plenty of water. IF IN EYES, hold eyelids open and flush with plenty of water. IF SWALLOWED and victim is CONSCIOUS, have victim drink water or milk. IF SWALLOWED and victim is UNCONSCIOUS OR HAVING CONVULSIONS, do nothing except keep victim warm.			<p><b>8.1 49 CFR Category:</b> Not listed</p> <p><b>8.2 49 CFR Class:</b> Not pertinent</p> <p><b>8.3 49 CFR Package Group:</b> Not listed</p> <p><b>8.4 Marine Pollutant:</b> No</p> <p><b>8.5 NFPA Hazard Classification:</b> Not listed</p> <p><b>8.6 EPA Reportable Quantity:</b> Not listed</p> <p><b>8.7 EPA Pollution Category:</b> Not listed.</p> <p><b>8.8 RCRA Waste Number:</b> Not listed</p> <p><b>8.9 EPA FWPCA List:</b> Not listed</p>	<b>9. PHYSICAL &amp; CHEMICAL PROPERTIES</b>
<b>Water Pollution</b>	Effect of low concentrations on aquatic life is unknown. May be dangerous if it enters water intakes. Notify local health and wildlife officials. Notify operators of nearby water intakes.			<p><b>5. CHEMICAL REACTIVITY</b></p> <p><b>5.1 Reactivity with Water:</b> No reaction</p> <p><b>5.2 Reactivity with Common Materials:</b> Currently not available</p> <p><b>5.3 Stability During Transport:</b> Stable</p> <p><b>5.4 Neutralizing Agents for Acids and Caustics:</b> Not pertinent</p> <p><b>5.5 Polymerization:</b> Not pertinent</p> <p><b>5.6 Inhibitor of Polymerization:</b> Not pertinent</p>	<p><b>9.1 Physical State at 15° C and 1 atm:</b> Solid</p> <p><b>9.2 Molecular Weight:</b> 184.8</p> <p><b>9.3 Boiling Point at 1 atm:</b> Not pertinent (decomposes)</p> <p><b>9.4 Freezing Point:</b> Not pertinent</p> <p><b>9.5 Critical Temperature:</b> Not pertinent</p> <p><b>9.6 Critical Pressure:</b> Not pertinent</p> <p><b>9.7 Specific Gravity:</b> 2.15 at 20°C (solid)</p> <p><b>9.8 Liquid Surface Tension:</b> Not pertinent</p> <p><b>9.9 Liquid Water Interfacial Tension:</b> Not pertinent</p> <p><b>9.10 Vapor (Gas) Specific Gravity:</b> Not pertinent</p> <p><b>9.11 Ratio of Specific Heats of Vapor (Gas):</b> Not pertinent</p> <p><b>9.12 Latent Heat of Vaporization:</b> Not pertinent</p> <p><b>9.13 Heat of Combustion:</b> Not pertinent</p> <p><b>9.14 Heat of Decomposition:</b> Not pertinent</p> <p><b>9.15 Heat of Solution:</b> Not pertinent</p> <p><b>9.16 Heat of Polymerization:</b> Not pertinent</p> <p><b>9.17 Heat of Fusion:</b> Currently not available</p> <p><b>9.18 Limiting Value:</b> Currently not available</p> <p><b>9.19 Reid Vapor Pressure:</b> Currently not available</p>
<b>1. CORRECTIVE RESPONSE ACTIONS</b>	Dilute and disperse Stop discharge	<b>2. CHEMICAL DESIGNATIONS</b>		<b>6. WATER POLLUTION</b>	<b>NOTES</b>
		<p><b>2.1 CG Compatibility Group:</b> Not listed.</p> <p><b>2.2 Formula:</b> Ni(HCO<sub>3</sub>)<sub>2</sub>·2H<sub>2</sub>O</p> <p><b>2.3 IMO/UN Designation:</b> Not listed</p> <p><b>2.4 DOT ID No.:</b> Not listed</p> <p><b>2.5 CAS Registry No.:</b> Currently not available</p> <p><b>2.6 NAERG Guide No.:</b> Not listed</p> <p><b>2.7 Standard Industrial Trade Classification:</b> 51374</p>			
<b>3. HEALTH HAZARDS</b>					
<b>3.1 Personal Protective Equipment:</b> Bu. Mines approved respirator; rubber gloves; face shield or safety goggles; protective clothing					
<b>3.2 Symptoms Following Exposure:</b> Inhalation of dust causes irritation of nose and throat. Ingestion causes vomiting. Dust irritates eyes and may cause dermatitis in contact with skin.					
<b>3.3 Treatment of Exposure:</b> INHALATION: move to fresh air; get medical attention if exposure has been severe. INGESTION: give large amounts of water. EYES: flush with water for at least 15 min. SKIN: flush with water.					
3.4 TLV-TWA: Notice of intended change: 1.5 mg Ni/m <sup>3</sup>					
3.5 TLV-STEL: Not listed.					
3.6 TLV-Ceiling: Not listed.					
3.7 Toxicity by Ingestion: Grade 2; LD <sub>50</sub> = 0.5-5 g/kg					
3.8 Toxicity by Inhalation: Currently not available.					
3.9 Chronic Toxicity: Possible lung cancer					
3.10 Vapor (Gas) Irritancy Characteristics: Currently not available					
3.11 Liquid or Solid Characteristics: Currently not available					
3.12 Odor Threshold: Currently not available					
3.13 IDLH Value: 10 mg Ni/m <sup>3</sup>					
3.14 OSHA PEL-TWA: 1 mg/m <sup>3</sup> as nickel					
3.15 OSHA PEL-STEL: Not listed.					
3.16 OSHA PEL-Ceiling: Not listed.					
3.17 EPA AEGL: Not listed					

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9.20 SATURATED LIQUID DENSITY		9.21 LIQUID HEAT CAPACITY		9.22 LIQUID THERMAL CONDUCTIVITY		9.23 LIQUID VISCOSITY	
Temperature (degrees F)	Pounds per cubic foot	Temperature (degrees F)	British thermal unit per pound-F	Temperature (degrees F)	British thermal unit inch per hour-square foot-F	Temperature (degrees F)	Centipoise
	NOT PERTINENT		NOT PERTINENT		NOT PERTINENT		NOT PERTINENT

9.24 SOLUBILITY IN WATER		9.25 SATURATED VAPOR PRESSURE		9.26 SATURATED VAPOR DENSITY		9.27 IDEAL GAS HEAT CAPACITY	
Temperature (degrees F)	Pounds per 100 pounds of water	Temperature (degrees F)	Pounds per square inch	Temperature (degrees F)	Pounds per cubic foot	Temperature (degrees F)	British thermal unit per pound-F
34	3.061		NOT		NOT		NOT
36	3.072						
38	3.083						
40	3.094						
42	3.106						
44	3.117		PERTINENT		PERTINENT		PERTINENT
46	3.128						
48	3.139						
50	3.150						
52	3.161						
54	3.172						
56	3.183						
58	3.194						
60	3.206						
62	3.217						
64	3.228						
66	3.239						
68	3.250						
70	3.261						
72	3.272						
74	3.283						
76	3.294						
78	3.306						
80	3.317						
82	3.328						
84	3.339						