



SAFETY DATA SHEET

NICKEL ACID – 2080

SDS according to the Workplace Hazardous Materials Information System (WHMIS) 2015

Section 1. Identification

Product identifier

Product name NICKEL ACID

Product number 2080

Relevant identified uses of the substance or mixture and uses advised against

Relevant uses Industrial Use

Uses advised against Any other purpose.

Supplier Canadian Metal – Ad Corporation
42 Regan Road, Unit # 17
Brampton, ON. L7A 1B4
Canada
Tel.: 905-459-6457
E-Mail: info@metalad.ca

Emergency telephone number

Emergency spill response telephone number Toll Free: 1-800-899-6926

Section 2. Hazard(s) identification

This product is considered hazardous by the Workplace Hazardous Materials Information System (WHMIS) 2015

Classification of the Substance or mixture RESPIRATORY SENSITIZATION – Category 1
SKIN SENSITIZATION – Category 1
GERM CELL MUTAGENICITY – Category 2
CARDINOGENICITY – Category 1
TOXIC TO REPRODUCTION - Category 1
SPECIFIC TARGET ORGAN TOXICITY (REPEATED EXPOSURE) – Category 1

GHS label elements



Hazard pictograms

Signal word Danger

Hazard statements May cause an allergic skin reaction.
May cause allergy or asthma symptoms or breathing difficulties if inhaled.
Suspected of causing genetic defects.
May cause cancer.
May damage fertility or the unborn child.

Section 2. Hazard identification

- Prevention** : Obtain special instructions before use. Do not handle until all safety precautions have been read and understood. Wear protective gloves, protective clothing and eye or face protection. Wear respiratory protection: Recommended: Combination filtering device (DIN EN 14387). Do not breathe vapor. Do not eat, drink or smoke when using this product. Wash thoroughly after handling. Contaminated work clothing should not be allowed out of the workplace.
- Response** : IF exposed or concerned: Get medical advice or attention. IF INHALED: Remove person to fresh air and keep comfortable for breathing. If experiencing respiratory symptoms: Call a POISON CENTER or doctor. Take off contaminated clothing and wash it before reuse. IF ON SKIN: Wash with plenty of water. If skin irritation or rash occurs: Get medical advice or attention.
- Storage** : Store locked up.
- Disposal** : Dispose of contents and container in accordance with all local, regional, national and international regulations.

Section 3. Composition/information on ingredients

Substance/mixture : Mixture

Ingredient name	% (w/w)	CAS number
nickel sulphate	10 - 30	7786-81-4
nickel diformate	5 - 10	3349-06-2
citric acid	3 - 7	77-92-9

Ranges if listed above for hazardous ingredient(s) are prescribed ranges. The actual concentration(s) or actual concentration range(s) are being withheld as a trade secret.

Section 4. First-aid measures

Description of necessary first aid measures

- General advice** : Get medical attention immediately. If medical advice is needed, have product container or label at hand. Use personal protective equipment as required. Remove contaminated clothing and wash it before reuse. Wash skin surfaces thoroughly after contact.
- Inhalation** : Get medical attention immediately. Move affected person to fresh air. If not breathing, if breathing is irregular or if respiratory arrest occurs, provide artificial respiration or oxygen by trained personnel.
- Skin contact** : Wash with plenty of soap and water. Remove contaminated clothing and wash it before reuse. Get medical attention if symptoms occur.
- Eye contact** : Flush with plenty of water for at least 15 minutes, occasionally lifting the upper and lower eyelids. Remove contact lenses, if present and easy to do.
- Ingestion** : Ingestion may cause gastrointestinal irritation and diarrhea. Do not induce vomiting unless directed to do so by medical personnel. Never give anything by mouth to an unconscious person.

Most important symptoms/effects, acute and delayed

- Inhalation** : wheezing and breathing difficulties, asthma
- Skin contact** : irritation, redness, skin rash or hives
- Eye contact** : Not expected under normal use.
- Ingestion** : Not expected under normal use.

Indication of immediate medical attention and special treatment needed, if necessary

- Notes to physician** : Treat symptomatically.
- Specific treatments** : No specific treatment.

Section 4. First-aid measures

- Protection of first-aiders** : No action shall be taken involving any personal risk or without suitable training. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation. Wash contaminated clothing thoroughly with water before removing it, or wear gloves. Use personal protective equipment as required.

Section 5. Fire-fighting measures

Extinguishing media

- Suitable extinguishing media** : Use an extinguishing agent suitable for the surrounding fire. Use dry chemical, CO₂, water spray (fog) or foam.
- Unsuitable extinguishing media** : Do not use water jet.

- Specific hazards arising from the chemical** : In a fire or if heated, a pressure increase will occur and the container may burst.

- Hazardous thermal decomposition products** : In a fire, hazardous decomposition products may be produced. carbon oxides (CO, CO₂) nitrogen oxides sulfur oxides metal oxide/oxides

- Special protective actions for fire-fighters** : Promptly isolate the scene by removing all persons from the vicinity of the incident if there is a fire. No action shall be taken involving any personal risk or without suitable training.

- Special protective equipment for fire-fighters** : Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode.

Section 6. Accidental release measures

Personal precautions, protective equipment and emergency procedures

- For non-emergency personnel** : No action shall be taken involving any personal risk or without suitable training. Put on appropriate personal protective equipment (see Section 8). Keep unnecessary personnel away. Avoid breathing vapor or mist. Provide adequate ventilation.
- For emergency responders** : If specialized clothing is required to deal with the spillage, take note of any information in Section 8 on suitable and unsuitable materials. See also the information in "For non-emergency personnel". Evacuate area.

- Environmental precautions** : Inform the relevant authorities if the product has caused environmental pollution (sewers, waterways, soil or air). Do not allow any potentially contaminated water, including rain water, runoff from fire fighting or spills, to enter any waterway, sewer or drain.

Methods and materials for containment and cleaning up

- Small spill** : Stop leak if without risk. Move containers from spill area. Prevent entry into sewers, water courses, basements or confined areas. Absorb with an inert material and place in an appropriate waste disposal container. Dispose of via a licensed waste disposal contractor.
- Large spill** : Stop leak if without risk. Move containers from spill area. For large spills, dike spilled material or otherwise contain it to ensure runoff does not reach a waterway. Absorb with an inert material and place in an appropriate waste disposal container. Dispose of via a licensed waste disposal contractor.

Section 7. Handling and storage

Precautions for safe handling

- Protective measures** : Put on appropriate personal protective equipment (see Section 8). Do not get in eyes or on skin or clothing. Do not breathe vapor or mist. Do not ingest.
- Advice on general occupational hygiene** : Eating, drinking and smoking should be prohibited in areas where this material is handled, stored and processed. Workers should wash hands and face before eating, drinking and smoking. Remove contaminated clothing and protective equipment before entering eating areas. See also Section 8 for additional information on hygiene measures.
- Conditions for safe storage, including any incompatibilities** : Store in accordance with local regulations. Store in original container protected from direct sunlight in a dry, cool and well-ventilated area, away from incompatible materials (see Section 10) and food and drink. Keep container tightly closed. Keep from freezing. Do not store in unlabeled containers. Use appropriate containment to avoid environmental contamination.
- Storage temperature** : Store between the following temperatures: 5 to 35°C (41 to 95°F).

Section 8. Exposure controls/personal protection

Control parameters

Occupational exposure limits

Ingredient name	Exposure limits
nickel sulphate	CA Saskatchewan Provincial (Canada, 7/2013). [Nickel soluble inorganic compounds] STEL: 0.3 mg/m ³ , (measured as Ni) 15 minutes. Form: Inhalable fraction TWA: 0.1 mg/m ³ , (measured as Ni) 8 hours. Form: Inhalable fraction CA Ontario Provincial (Canada, 6/2019). [Nickel (Soluble compounds)] TWA: 0.1 mg/m ³ , (as Ni) 8 hours. Form: Inhalable particulate matter. CA Alberta Provincial (Canada, 6/2018). [Nickel Soluble compounds] 8 hrs OEL: 0.1 mg/m ³ , (as Ni) 8 hours. CA British Columbia Provincial (Canada, 3/2022). [Nickel - Elemental, Soluble inorganic compounds] TWA: 0.05 mg/m ³ , (as Ni) 8 hours. CA Quebec Provincial (Canada, 6/2021). [nickel and inorganic compounds - soluble compounds] TWAEV: 0.1 mg/m ³ , (as Ni) 8 hours. Form: inhalable dust
nickel diformate	CA Saskatchewan Provincial (Canada, 7/2013). [Nickel soluble inorganic compounds] STEL: 0.3 mg/m ³ , (measured as Ni) 15 minutes. Form: Inhalable fraction TWA: 0.1 mg/m ³ , (measured as Ni) 8 hours. Form: Inhalable fraction CA Ontario Provincial (Canada, 6/2019). [Nickel (Soluble compounds)] TWA: 0.1 mg/m ³ , (as Ni) 8 hours. Form: Inhalable particulate matter. CA Alberta Provincial (Canada, 6/2018). [Nickel Soluble compounds]

Section 8. Exposure controls/personal protection

8 hrs OEL: 0.1 mg/m³, (as Ni) 8 hours.
CA British Columbia Provincial (Canada, 3/2022). [Nickel - Elemental, Soluble inorganic compounds]
 TWA: 0.05 mg/m³, (as Ni) 8 hours.
CA Quebec Provincial (Canada, 6/2021). [nickel and inorganic compounds - soluble compounds]
 TWAEV: 0.1 mg/m³, (as Ni) 8 hours. Form: inhalable dust

- Appropriate engineering controls** : If user operations generate dust, fumes, gas, vapor or mist, use process enclosures, local exhaust ventilation or other engineering controls to keep worker exposure to airborne contaminants below any recommended or statutory limits.
- Environmental exposure controls** : Emissions from ventilation or work process equipment should be checked to ensure they comply with the requirements of environmental protection legislation. In some cases, fume scrubbers, filters or engineering modifications to the process equipment will be necessary to reduce emissions to acceptable levels.

Individual protection measures

- Hygiene measures** : Wash hands, forearms and face thoroughly after handling chemical products, before eating, smoking and using the lavatory and at the end of the working period. Eating, drinking and smoking should be prohibited in areas where this material is handled, stored and processed. Appropriate techniques should be used to remove potentially contaminated clothing. Wash contaminated clothing before reusing. Ensure that eyewash stations and safety showers are close to the workstation location. Keep equipment clean.
- Eye/face protection** : Safety eyewear complying with an approved standard should be used when a risk assessment indicates this is necessary to avoid exposure to liquid splashes, mists, gases or dusts. If contact is possible, the following protection should be worn, unless the assessment indicates a higher degree of protection: safety glasses with side-shields.
- Hand protection** : Chemical-resistant, impervious gloves complying with an approved standard should be worn at all times when handling chemical products if a risk assessment indicates this is necessary. Considering the parameters specified by the glove manufacturer, check during use that the gloves are still retaining their protective properties. It should be noted that the time to breakthrough for any glove material may be different for different glove manufacturers.
- Other skin protection** : Personal protective equipment for the body should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product. Appropriate footwear and any additional skin protection measures should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product.
- Respiratory protection** : Wear appropriate respiratory protection. Recommended: Combination filtering device (DIN EN 14387) Recommended: Combination filtering device, Type B+E/P3
- Thermal hazards** : Not expected under normal use. Not relevant/applicable due to nature of the product.

Section 9. Physical and chemical properties

Appearance

- Physical state** : Liquid.
- Color** : Green.
- Odor** : Odorless.
- Odor threshold** : Not available.
- pH** : 2.2 to 2.6

Section 9. Physical and chemical properties

Melting point	: Not available.
Boiling point	: 100°C (212°F)
Flash point	: Not available.
Evaporation rate	: Not available.
Flammability (solid, gas)	: Not available.
Lower and upper explosive (flammable) limits	: Not available.
Vapor pressure	: Not available.
Vapor density	: Not available.
Density	: 1.27 to 1.3 g/cm ³ [20°C (68°F)]
Solubility	: Not available.
Partition coefficient: n-octanol/water	: Not applicable.
Auto-ignition temperature	: Not available.
Decomposition temperature	: Not available.
Median particle size	: Not applicable.

Section 10. Stability and reactivity

Reactivity	: No specific test data related to reactivity available for this product or its ingredients.
Chemical stability	: The product is stable.
Possibility of hazardous reactions	: Under normal conditions of storage and use, hazardous reactions will not occur.
Conditions to avoid	: No specific measures identified.
Incompatible materials	: Strong oxidizing materials. strong acids. strong alkalis
Hazardous decomposition products	: Under normal conditions of storage and use, hazardous decomposition products should not be produced.

Section 11. Toxicological information

Information on toxicological effects

Acute toxicity : Based on available data, the classification criteria are not met.

Acute toxicity estimates

Route	ATE value
Oral	3311.26 mg/kg
Inhalation (dusts and mists)	16.42 mg/l

Numerical measures of toxicity

Product/ingredient name	Result	Species	Dose	Exposure
nickel sulphate	LC50 Inhalation Dusts and mists	Rat	2.48 mg/l	4 hours
	LD50 Oral	Rat	275 mg/kg	-
citric acid	LD50 Dermal	Rabbit	>2000 mg/kg	-
	LD50 Oral	Rat	3 g/kg	-

Irritation/Corrosion : Based on available data, the classification criteria are not met.

Section 11. Toxicological information

Product/ingredient name	Result	Species	Score	Exposure	Observation
nickel sulphate citric acid	Skin - Mild irritant	Woman	-	48 hours 5 %	-
	Eyes - Severe irritant	Rabbit	-	24 hours 750 ug	-
	Skin - Mild irritant	Rabbit	-	24 hours 500 mg	-
	Skin - Moderate irritant	Rabbit	-	0.5 MI	-

Sensitization : May cause sensitization by inhalation. May cause sensitization by skin contact.

Mutagenicity : Suspected of causing genetic defects.

Carcinogenicity : May cause cancer

Product/ingredient name	IARC	NTP
nickel sulphate	1	Known to be a human carcinogen.
nickel diformate	1	Known to be a human carcinogen.

Reproductive toxicity : May damage the unborn child.

Specific target organ toxicity (single exposure) : Based on available data, the classification criteria are not met.

Name	Category	Route of exposure	Target organs
citric acid	Category 3	-	Respiratory tract irritation

Specific target organ toxicity (repeated exposure) : May cause damage to organs through prolonged or repeated exposure.

Name	Category	Route of exposure	Target organs
nickel sulphate	Category 1	-	kidneys, liver
nickel diformate	Category 1	-	-

Aspiration hazard : Based on available data, the classification criteria are not met.

Other information : None identified.

Information on the likely routes of exposure

Inhalation : Causes sensitization by inhalation.
Skin contact : May cause sensitization by skin contact.
Eye contact : No known significant effects or critical hazards.
Ingestion : No known significant effects or critical hazards.

Delayed and immediate effects and also chronic effects from short and long term exposure

May cause cancer Suspected of causing genetic defects. May damage the unborn child. May cause damage to organs through prolonged or repeated exposure.

Symptoms related to the physical, chemical and toxicological characteristics

Inhalation : wheezing and breathing difficulties, asthma
Skin contact : irritation, redness, skin rash or hives
Eye contact : Not expected under normal use.
Ingestion : Not expected under normal use.

Section 12. Ecological information

This material is toxic to aquatic life with long lasting effects.

Toxicity

Product/ingredient name	Result	Species	Exposure
nickel sulphate	Acute IC50 7.28 mg/l Marine water	Algae - Phaeodactylum tricornutum - Exponential growth phase	72 hours
	Acute IC50 4.59 mg/l Marine water	Algae - Phaeodactylum tricornutum - Exponential growth phase	96 hours
	Acute LC50 39177.81 µg/l Fresh water	Crustaceans - Stenocypris major - Adult	48 hours
	Acute LC50 180 µg/l Fresh water	Daphnia - Daphnia magna	48 hours
citric acid	Acute LC50 589.9 µg/l Fresh water	Fish - Danio rerio - Larvae	96 hours
	Acute LC50 160000 µg/l Marine water	Crustaceans - Carcinus maenas - Adult	48 hours

Persistence and degradability

Bioaccumulative potential

Product/ingredient name	LogP _{ow}	BCF	Potential
nickel sulphate	-	5613	high
citric acid	-1.8	-	low

Mobility in soil

Soil/water partition coefficient (K_{oc}) : Not available.

Other adverse effects : No known significant effects or critical hazards.

Section 13. Disposal considerations

Disposal methods : Disposal of this product, solutions and any by-products should at all times comply with the requirements of environmental protection and waste disposal legislation and any regional local authority requirements. Dispose of surplus and non-recyclable products via a licensed waste disposal contractor. Empty containers or liners may retain some product residues. Empty containers retain product residue and can be hazardous. Care should be taken when handling emptied containers that have not been cleaned or rinsed out.

Section 14. Transport information

	TDG Classification	IMDG	IATA
UN number	Not regulated.	UN3082	UN3082
UN proper shipping name	-	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (nickel sulphate)	Environmentally hazardous substance, liquid, n.o.s. (nickel sulphate)

Section 14. Transport information

Transport hazard class(es)	-	9 Corrosive (C) and Environment (E)	9 Corrosive (C) and Environment (E)
Packing group	-	III	III
Environmental hazards	No.	Yes.	Yes.

Additional information

IMDG

: This product is not regulated as a dangerous good when transported in sizes of ≤5 L or ≤5 kg, provided the packagings meet the general provisions of 4.1.1.1, 4.1.1.2 and 4.1.1.4 to 4.1.1.8.

Emergency schedules F-A, S-F

Special provisions 274, 335, 969

IATA

: This product is not regulated as a dangerous good when transported in sizes of ≤5 L or ≤5 kg, provided the packagings meet the general provisions of 5.0.2.4.1, 5.0.2.6.1.1 and 5.0.2.8.

Quantity limitation Passenger and Cargo Aircraft: 450 L. Packaging instructions: 964. Cargo Aircraft Only: 450 L. Packaging instructions: 964. Limited Quantities - Passenger Aircraft: 30 kg. Packaging instructions: Y964.

Special provisions A97, A158, A197, A215

Special precautions for user : **Transport within user's premises:** always transport in closed containers that are upright and secure. Ensure that persons transporting the product know what to do in the event of an accident or spillage.

Transport in bulk according to IMO instruments : Not available.

Section 15. Regulatory information

Canadian lists

Canadian NPRI : Contains one or more substances that are listed

CEPA Toxic substances : Contains one or more substances that are listed

International regulations

Montreal Protocol

Not listed.

Stockholm Convention on Persistent Organic Pollutants

Not listed.

Rotterdam Convention on Prior Informed Consent (PIC)

Not listed.

UNECE Aarhus Protocol on POPs and Heavy Metals

Not listed.

Inventory list

United States : All components are active or exempted.

Canada : At least one component is not listed in DSL but all such components are listed in NDSL.

Section 16. Other information

Version	: 1 Quaker Houghton Product Stewardship
Key to abbreviations	: ATE = Acute Toxicity Estimate BCF = Bioconcentration Factor GHS = Globally Harmonized System of Classification and Labelling of Chemicals HPR = Hazardous Products Regulations IATA = International Air Transport Association IBC = Intermediate Bulk Container IMDG = International Maritime Dangerous Goods LogPow = logarithm of the octanol/water partition coefficient MARPOL = International Convention for the Prevention of Pollution From Ships, 1973 as modified by the Protocol of 1978. ("Marpol" = marine pollution) N/A = Not available SGG = Segregation Group UN = United Nations
Key literature references and sources for data	: Safety data sheets of raw materials, global regulatory body information, scientific literature, and testing data .

☑ Indicates information that has changed from previously issued version.

Disclaimer

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