



SAFETY DATA SHEET

MATERION

1. Identification

Product identifier Nickel Fluoride (NiF2)

Other means of identification

SDS number 1YL
Materion Code 1YL
CAS number 10028-18-9

Manufacturer/Importer/Supplier/Distributor information

Manufacturer

Company name Materion Advanced Chemicals Inc.
Address 407 N 13th Street
 1316 W. St. Paul Avenue
 Milwaukee, WI 53233
 United States
Telephone 414.212.0257
E-mail advancedmaterials@materion.com
Contact person Noreen Atkinson
Emergency phone number Chemtrec 800.424.9300

2. Hazard(s) identification

Physical hazards Not classified.

Health hazards

Acute toxicity, oral	Category 3
Acute toxicity, inhalation	Category 3
Skin corrosion/irritation	Category 2
Serious eye damage/eye irritation	Category 1
Sensitization, respiratory	Category 1
Sensitization, skin	Category 1
Germ cell mutagenicity	Category 2
Carcinogenicity (inhalation)	Category 1A
Reproductive toxicity	Category 1
Specific target organ toxicity, repeated exposure	Category 1

Environmental hazards

Hazardous to the aquatic environment, acute hazard	Category 1
Hazardous to the aquatic environment, long-term hazard	Category 1

OSHA defined hazards Not classified.

Label elements



Signal word Danger

Hazard statement Toxic if swallowed or if inhaled. Causes skin irritation. May cause allergic skin reaction. May cause allergy or asthma symptoms or breathing difficulties if inhaled. Causes serious eye damage. Suspected of damaging fertility or the unborn child. May cause cancer. Causes damage to organs (respiratory system) through prolonged or repeated exposure by inhalation.

Precautionary statement

Prevention

Obtain special instructions before use. Do not handle until all safety precautions have been read and understood. Do not breathe dust/fume/gas/mist/vapors/spray. Wash hands thoroughly after handling. Do not eat, drink or smoke when using this product. Use only outdoors or in a well-ventilated area. Contaminated work clothing should not be allowed out of the workplace. Wear protective gloves/protective clothing/eye protection/face protection. In case of insufficient ventilation, wear suitable respiratory equipment.

Response

IF SWALLOWED: Immediately call a POISON CENTER or doctor/physician. Rinse mouth. IF ON SKIN: Wash with plenty of soap and water. IF INHALED: Remove to fresh air and keep at rest in a position comfortable for breathing. Call a poison center/doctor. IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Immediately call a poison center/doctor. IF exposed or concerned: Get medical advice/attention. If skin irritation or rash occurs: Get medical advice/attention. Take off contaminated clothing and wash before reuse.

Storage

Store in a well-ventilated place. Keep container tightly closed. Store locked up.

Disposal

Dispose of contents/container in accordance with local/regional/national/international regulations.

Hazard(s) not otherwise classified (HNOC)

None known.

Supplemental information

None.

3. Composition/information on ingredients

Substances

Chemical name	Common name and synonyms	CAS number	%
Nickel Fluoride (NiF2)		10028-18-9	100

4. First-aid measures

Inhalation

Move into fresh air and keep at rest. If breathing has stopped, perform artificial respiration and obtain medical help.

Skin contact

Wash skin thoroughly with soap and water. If calcium gluconate gel is available, rub it into affected skin. Call a physician or poison control center immediately.

Eye contact

Rinse thoroughly with plenty of water for at least 15 minutes and consult a physician. Continue to rinse for 30 minutes.

Ingestion

Never give anything by mouth to an unconscious person. Rinse mouth thoroughly. Seek medical advice.

Most important symptoms/effects, acute and delayed

Not available.

Indication of immediate medical attention and special treatment needed

Symptoms may be delayed. Following inhalation exposure, a 2.5% calcium gluconate solution can be given by nebulizer.

General information

Consult a physician. Show this safety data sheet to the doctor in attendance. Remove affected person from source of contamination.

5. Fire-fighting measures

Suitable extinguishing media

Water spray, foam, dry powder or carbon dioxide.

Unsuitable extinguishing media

Not available.

Specific hazards arising from the chemical

Not applicable.

Special protective equipment and precautions for firefighters

Wear self-contained breathing apparatus and protective clothing.

6. Accidental release measures

Personal precautions, protective equipment and emergency procedures

Avoid generation and spreading of dust. Avoid inhalation of vapor, fumes, dust and/or mist from the spilled material. Wear suitable protective clothing, gloves and eye/face protection. Ventilate well.

Methods and materials for containment and cleaning up

Stop leak if you can do so without risk. Prevent runoff from entering drains, sewers, or streams.

Environmental precautions

Avoid release to the environment.

7. Handling and storage

Precautions for safe handling Avoid contact with eyes and prolonged or repeated contact with skin. Avoid formation of dusts and aerosols. Provide appropriate exhaust ventilation at places where dust is formed. Combustible dust clouds may be created where operations produce fine material (dust).

Conditions for safe storage, including any incompatibilities Not available.

8. Exposure controls/personal protection

Occupational exposure limits

US. OSHA Table Z-2 (29 CFR 1910.1000)

Material	Type	Value	Form
Nickel Fluoride (NiF ₂) (CAS 10028-18-9)	TWA	2.5 mg/m ³	Dust.

Biological limit values

ACGIH Biological Exposure Indices

Material	Value	Determinant	Specimen	Sampling Time
Nickel Fluoride (NiF ₂) (CAS 10028-18-9)	3 mg/l	Fluoride	Urine	*
	2 mg/l	Fluoride	Urine	*

* - For sampling details, please see the source document.

Appropriate engineering controls Not available.

Individual protection measures, such as personal protective equipment

Eye/face protection Wear safety glasses with side shields (or goggles) and a face shield.

Skin protection

Hand protection Wear protective gloves.

Other Wear suitable protective clothing and gloves.

Respiratory protection When airborne exposures exceed or have the potential to exceed the occupational exposure limits, approved respirators must be used as specified by an Industrial Hygienist or other qualified professional. Respirator users must be medically evaluated to determine if they are physically capable of wearing a respirator. Quantitative and/or qualitative fit testing and respirator training must be satisfactorily completed by all personnel prior to respirator use. Users of tight fitting respirators must be clean shaven on those areas of the face where the respirator seal contacts the face. Use pressure-demand airline respirators when performing jobs with high potential exposures such as changing filters in a baghouse air cleaning device.

Thermal hazards Not available.

9. Physical and chemical properties

Appearance

Physical state Solid.

Form Not available.

Color Not available.

Odor Not available.

Odor threshold Not available.

pH Not available.

Melting point/freezing point 1832 °F (1000 °C)

Initial boiling point and boiling range Not available.

Flash point Not available.

Evaporation rate Not available.

Flammability (solid, gas) Not available.

Upper/lower flammability or explosive limits

Flammability limit - lower (%) Not available.

Flammability limit - upper (%)	Not available.
Explosive limit - lower (%)	Not available.
Explosive limit - upper (%)	Not available.
Vapor pressure	< 0.0000001 kPa at 25 °C
Vapor density	Not available.
Relative density	Not available.
Solubility(ies)	
Solubility (water)	Not available.
Partition coefficient (n-octanol/water)	Not available.
Auto-ignition temperature	Not available.
Decomposition temperature	Not available.
Viscosity	Not available.
Other information	
Density	4.72 g/cm3 estimated
Molecular formula	F2-Ni
Molecular weight	96.69 g/mol
Specific gravity	4.72

10. Stability and reactivity

Reactivity	Not available.
Chemical stability	Not available.
Possibility of hazardous reactions	Not available.
Conditions to avoid	Not available.
Incompatible materials	Not available.
Hazardous decomposition products	Not available.

11. Toxicological information

Information on likely routes of exposure

Inhalation	Not available.
Skin contact	Not available.
Eye contact	Not available.
Ingestion	Not available.

Symptoms related to the physical, chemical and toxicological characteristics Not available.

Information on toxicological effects

Acute toxicity	Not available.
Skin corrosion/irritation	Not available.
Serious eye damage/eye irritation	Not available.

Respiratory or skin sensitization

Respiratory sensitization	Not available.
Skin sensitization	Not available.

Germ cell mutagenicity Not available.

Carcinogenicity

IARC Monographs. Overall Evaluation of Carcinogenicity

Nickel Fluoride (NiF₂) (CAS 10028-18-9) 1 Carcinogenic to humans.

OSHA Specifically Regulated Substances (29 CFR 1910.1001-1050)

Not regulated.

US. National Toxicology Program (NTP) Report on Carcinogens

Nickel Fluoride (NiF2) (CAS 10028-18-9)

Known To Be Human Carcinogen.

Reproductive toxicity	Not available.
Specific target organ toxicity - single exposure	Not available.
Specific target organ toxicity - repeated exposure	Not available.
Aspiration hazard	Not available.

12. Ecological information

Ecotoxicity	No ecotoxicity data noted for the ingredient(s).
Persistence and degradability	Not available.
Bioaccumulative potential	Not available.
Mobility in soil	Not available.
Other adverse effects	Not available.

13. Disposal considerations

Disposal instructions	Dispose of waste material according to Local, State, Federal, and Provincial Environmental Regulations.
Waste from residues / unused products	Not available.
Contaminated packaging	Not available.

14. Transport information

DOT

UN number	UN3077
UN proper shipping name	Environmentally hazardous substances, solid, n.o.s. (Nickel Fluoride (NiF2))
Transport hazard class(es)	
Class	9
Subsidiary risk	-
Label(s)	9
Packing group	III
Special precautions for user	Not available.
Special provisions	8, 146, 335, A112, B54, IB8, IP3, N20, T1, TP33
Packaging exceptions	155
Packaging non bulk	213
Packaging bulk	240

IATA

UN number	UN3077
UN proper shipping name	Environmentally hazardous substance, solid, n.o.s. (Nickel Fluoride (NiF2))
Transport hazard class(es)	
Class	9
Subsidiary risk	-
Packing group	III
Environmental hazards	No.
ERG Code	9L
Special precautions for user	Not available.
Other information	
Passenger and cargo aircraft	Allowed with restrictions.
Cargo aircraft only	Allowed with restrictions.

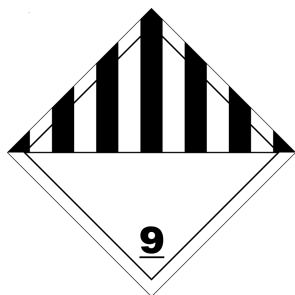
IMDG

UN number	UN3077
UN proper shipping name	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S. (Nickel Fluoride (NiF2))
Transport hazard class(es)	
Class	9
Subsidiary risk	-
Packing group	III

Environmental hazards

Marine pollutant No.
EmS F-A, S-F
Special precautions for user Not available.

DOT; IATA; IMDG



15. Regulatory information

US federal regulations

TSCA Section 12(b) Export Notification (40 CFR 707, Subpt. D)

Not regulated.

CERCLA Hazardous Substance List (40 CFR 302.4)

Nickel Fluoride (NiF2) (CAS 10028-18-9) Listed.

SARA 304 Emergency release notification

Not regulated.

OSHA Specifically Regulated Substances (29 CFR 1910.1001-1050)

Not regulated.

Superfund Amendments and Reauthorization Act of 1986 (SARA)

Hazard categories Immediate Hazard - Yes
Delayed Hazard - Yes
Fire Hazard - No
Pressure Hazard - No
Reactivity Hazard - No

SARA 302 Extremely hazardous substance

Not listed.

SARA 311/312 Hazardous chemical Yes

SARA 313 (TRI reporting)

Chemical name	CAS number	% by wt.
Nickel Fluoride (NiF2)	10028-18-9	100

Other federal regulations

Clean Air Act (CAA) Section 112 Hazardous Air Pollutants (HAPs) List

Nickel Fluoride (NiF2) (CAS 10028-18-9)

Clean Air Act (CAA) Section 112(r) Accidental Release Prevention (40 CFR 68.130)

Not regulated.

Clean Water Act (CWA) Section 112(r) (40 CFR 68.130) Priority pollutant
Toxic pollutant

Safe Drinking Water Act (SDWA) 4.0 mg/l
4.0 mg/l

US state regulations

US - California Proposition 65 - CRT: Listed date/Carcinogenic substance

Nickel Fluoride (NiF2) (CAS 10028-18-9) Listed: May 7, 2004

US. California. Candidate Chemicals List. Safer Consumer Products Regulations (Cal. Code Regs, tit. 22, 69502.3, subd. (a))

Nickel Fluoride (NiF2) (CAS 10028-18-9)

16. Other information, including date of preparation or last revision

Issue date	09-04-2015
Revision date	12-07-2018
Version #	03
Disclaimer	Not available.