MATERION

SAFETY DATA SHEET

SECTION 1: Identification of the substance/mixture and of the company/undertaking

1.1. Product identifier

Trade name or designation of the mixture	Molybdenum triflouroacetate
Registration number	-
Document number	2PQ
Synonyms	None.
Materion Code	2PQ
Issue date	12-August-2021
Version number	01

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

Identified uses	Not available.
Uses advised against	None known.

SECTION 2: Hazards identification

2.1. Classification of the substance or mixture

Classification according to Regulation (EC) No 1272/2008 as amended

Health hazards

Acute toxicity, oral	Category 3	H301 - Toxic if swallowed.
Acute toxicity, inhalation	Category 4	
Skin corrosion/irritation	Category 1A	H314 - Causes severe skin burns and eye damage.
Serious eye damage/eye irritation	Category 1	H318 - Causes serious eye damage.

Environmental hazards

Hazardous to the aquatic environment, long-term aquatic hazard	Category 3	

Hazard summary Not available.

2.2. Label elements

Label according to Regulation (EC) No. 1272/2008 as amended

Contains: TRIFLUOROACETIC ACID . . . %

Hazard pictograms

Signal word Danger

Hazard statements

H301	Toxic if swallowed.
H314	Causes severe skin burns and eye damage.
H318	Causes serious eye damage.
H332	Harmful if inhaled.
H311	Toxic in contact with skin.

Precautionary statements

Prevention

P261	Avoid breathing dust/fume/vapours/spray.
P264	Wash thoroughly after handling.
P270	Do not eat, drink or smoke when using this product.
P271	Use only outdoors or in a well-ventilated area.
P273	Avoid release to the environment.
P280	Wear protective gloves/protective clothing/eye protection/face protection.

Response

P301 + P330 + P331	Wash/decontaminate removed clothing before reuse. IF SWALLOWED: rinse mouth. Do NOT induce vomiting.

P303 + P361 + P353	IF ON SKIN (or hair): Remove/Take off immediately all contaminated clothing. Rinse skin with water/shower.
P304 + P340	IF INHALED: Remove to fresh air and keep at rest in a position comfortable for breathing.
P310	Immediately call a poison centre/doctor.
P390	Absorb spillage to prevent material damage.

Storage

P405	Store locked up.
P404	Store in a closed container.

Disposal

P501	Dispose of contents/container in accordance with local/regional/national/international regulations.

Supplemental label information None.

2.3. Other hazards None known.

SECTION 3: Composition/information on ingredients

3.2. Mixtures

General information

Chemical name	%	CAS-No. / EC No.	REACH Registration No.	Index No.	Notes
TRIFLUOROACETIC ACID . . .	%	76-05-1 200-929-3	-	607-091-00-1	
Classification: Acute Tox. 3;H301, Skin Corr. 1A;H314, Eye Dam. 1;H318, Acute Tox. 4;H332, Aquatic Chronic 3;H412					B

SECTION 4: First aid measures

General information Ensure that medical personnel are aware of the material(s) involved, and take precautions to protect themselves. Show this safety data sheet to the doctor in attendance.

4.1. Description of first aid measures

Inhalation Move into fresh air and keep at rest. If breathing has stopped, perform artificial respiration and obtain medical help. Consult a physician for specific advice.

Skin contact Immediately remove contaminated clothing and shoes and wash skin with soap and plenty of water. Get medical attention promptly if symptoms occur after washing. Wash clothing separately before reuse.

Eye contact Do not rub eye. Immediately flush with plenty of water for at least 15 minutes. If easy to do, remove contact lenses. Rinse thoroughly with plenty of water for at least 15 minutes and consult a physician.

Ingestion Immediately call a poison centre/doctor. Rinse mouth. Do not induce vomiting. If vomiting occurs, keep head low so that stomach content doesn't get into the lungs. Do not give direct mouth-to-mouth resuscitation if swallowed. To protect rescuer, use air-viva, oxy-viva or one-way mask. Resuscitate in a well-ventilated area.

4.2. Most important symptoms and effects, both acute and delayed Burning pain and severe corrosive skin damage. Causes serious eye damage. Symptoms may include stinging, tearing, redness, swelling, and blurred vision. Permanent eye damage including blindness could result.

4.3. Indication of any immediate medical attention and special treatment needed Treat symptomatically. Keep victim warm. Keep victim under observation. Symptoms may be delayed. Chemical burns: Flush with water immediately. While flushing, remove clothes which do not adhere to affected area. Call an ambulance. Continue flushing during transport to hospital.

SECTION 5: Firefighting measures

General fire hazards Decomposition in a fire produces toxic fumes.

5.1. Extinguishing media

Suitable extinguishing media Water spray or fog. Foam. Dry chemical powder. Carbon dioxide (CO2).

Unsuitable extinguishing media Do not use water jet as an extinguisher, as this will spread the fire.

5.2. Special hazards arising from the substance or mixture By heating and fire, harmful vapours/gases may be formed.

5.3. Advice for firefighters

Special protective equipment for firefighters Self-contained breathing apparatus and full protective clothing must be worn in case of fire.

Special firefighting procedures	Use standard firefighting procedures and consider the hazards of other involved materials. Use water spray to keep fire-exposed containers cool.
Specific methods	Use water spray to cool unopened containers.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

For non-emergency personnel	Keep unnecessary personnel away. Keep people away from and upwind of spill/leak. Wear appropriate protective equipment and clothing during clean-up. Avoid inhalation of dust. Do not touch damaged containers or spilled material unless wearing appropriate protective clothing. Ensure adequate ventilation. Local authorities should be advised if significant spillages cannot be contained.
For emergency responders	Not available.
6.2. Environmental precautions	Avoid release to the environment. Inform appropriate managerial or supervisory personnel of all environmental releases. Prevent further leakage or spillage if safe to do so. Avoid discharge into water courses or onto the ground.
6.3. Methods and material for containment and cleaning up	Avoid dispersal of dust in the air (i.e., clearing dust surfaces with compressed air). Prevent entry into waterways, sewers, basements or confined areas. Stop the flow of material, if this is without risk.
6.4. Reference to other sections	Not available.

SECTION 7: Handling and storage

7.1. Precautions for safe handling	Avoid generation and spreading of dust. Avoid contact with eyes, skin, and clothing. Wear protective gloves/protective clothing/eye protection/face protection. Use only in well-ventilated areas.
7.2. Conditions for safe storage, including any incompatibilities	Store in a cool dry place. Do not store in direct sunlight. Keep only in the original container. Store in a tightly closed container.
7.3. Specific end use(s)	Not available.

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

Occupational exposure limits

Austria. MAK List, OEL Ordinance (GwV), BGBl. II, no. 184/2001

Components	Type	Value	Form
Molybdenum Hexacarbonyl (CAS 13939-06-5)	MAK	10 mg/m3	Inhalable fraction.
	STEL	20 mg/m3	Inhalable fraction.

Belgium. Exposure Limit Values

Components	Type	Value
Molybdenum Hexacarbonyl (CAS 13939-06-5)	TWA	10 mg/m3

Bulgaria. OELs. Regulation No 13 on protection of workers against risks of exposure to chemical agents at work

Components	Type	Value
Molybdenum Hexacarbonyl (CAS 13939-06-5)	TWA	10 mg/m3

Croatia. Dangerous Substance Exposure Limit Values in the Workplace (ELVs), Annexes 1 and 2, Narodne Novine, 13/09

Components	Type	Value
Molybdenum Hexacarbonyl (CAS 13939-06-5)	MAC	10 mg/m3
	STEL	20 mg/m3

Czech Republic. OELs. Government Decree 361

Components	Type	Value
Molybdenum Hexacarbonyl (CAS 13939-06-5)	Ceiling	25 mg/m3
	TWA	5 mg/m3

Denmark. Exposure Limit Values

Components	Type	Value
Molybdenum Hexacarbonyl (CAS 13939-06-5)	TLV	10 mg/m3

Estonia. OELs. Occupational Exposure Limits of Hazardous Substances (Regulation No. 105/2001, Annex), as amended

Components	Type	Value	Form
Molybdenum Hexacarbonyl (CAS 13939-06-5)	TWA	5 mg/m3	Fine dust, respiratory fraction
		10 mg/m3	Total dust, respiratory fraction

Greece. OELs (Decree No. 90/1999, as amended)

Components	Type	Value
Molybdenum Hexacarbonyl (CAS 13939-06-5)	TWA	15 mg/m3

Hungary. OELs. Joint Decree on Chemical Safety of Workplaces

Components	Type	Value
Molybdenum Hexacarbonyl (CAS 13939-06-5)	STEL	60 mg/m3
	TWA	15 mg/m3

Iceland. OELs. Regulation 154/1999 on occupational exposure limits

Components	Type	Value
Molybdenum Hexacarbonyl (CAS 13939-06-5)	TWA	10 mg/m3

Ireland. Occupational Exposure Limits

Components	Type	Value	Form
Molybdenum Hexacarbonyl (CAS 13939-06-5)	TWA	3 mg/m3	Respirable fraction.
		10 mg/m3	Inhalable fraction.

Italy. Occupational Exposure Limits

Components	Type	Value	Form
Molybdenum Hexacarbonyl (CAS 13939-06-5)	TWA	3 mg/m3	Respirable fraction.
		10 mg/m3	Inhalable fraction.

Latvia. OELs. Occupational exposure limit values of chemical substances in work environment

Components	Type	Value
TRIFLUOROACETIC ACID . . . % (CAS 76-05-1)	TWA	2 mg/m3

Lithuania. OELs. Limit Values for Chemical Substances, General Requirements

Components	Type	Value	Form
Molybdenum Hexacarbonyl (CAS 13939-06-5)	TWA	5 mg/m3	Respirable fraction.
		10 mg/m3	Inhalable fraction.
TRIFLUOROACETIC ACID . . . % (CAS 76-05-1)	TWA	2 mg/m3	

Norway. Administrative Norms for Contaminants in the Workplace

Components	Type	Value
Molybdenum Hexacarbonyl (CAS 13939-06-5)	TLV	10 mg/m3

Poland. Ordinance of the Minister of Labour and Social Policy on 6 June 2014 on the maximum permissible concentrations and intensities of harmful health factors in the work environment, Journal of Laws 2014, item 817

Components	Type	Value
Molybdenum Hexacarbonyl (CAS 13939-06-5)	STEL	10 mg/m3
	TWA	4 mg/m3

Portugal. VLEs. Norm on occupational exposure to chemical agents (NP 1796)

Components	Type	Value	Form
Molybdenum Hexacarbonyl (CAS 13939-06-5)	TWA	3 mg/m3	Respirable fraction.
		10 mg/m3	Inhalable fraction.

Romania. OELs. Protection of workers from exposure to chemical agents at the workplace

Components	Type	Value
Molybdenum Hexacarbonyl (CAS 13939-06-5)	STEL	10 mg/m3
	TWA	5 mg/m3

Slovakia. OELs. Regulation No. 300/2007 concerning protection of health in work with chemical agents

Components	Type	Value	Form
Molybdenum Hexacarbonyl (CAS 13939-06-5)	TWA	5 mg/m3	Respirable fraction.
		10 mg/m3	Inhalable fraction.

Sweden. OELs. Work Environment Authority (AV), Occupational Exposure Limit Values (AFS 2015:7)

Components	Type	Value	Form
Molybdenum Hexacarbonyl (CAS 13939-06-5)	TWA	5 mg/m3	Respirable dust.
		10 mg/m3	Total dust.

Switzerland. SUVA Grenzwerte am Arbeitsplatz

Components	Type	Value	Form
Molybdenum Hexacarbonyl (CAS 13939-06-5)	TWA	10 mg/m3	Inhalable fraction.

UK. EH40 Workplace Exposure Limits (WELs)

Components	Type	Value
Molybdenum Hexacarbonyl (CAS 13939-06-5)	STEL	20 mg/m3
	TWA	10 mg/m3

Biological limit values No biological exposure limits noted for the ingredient(s).

Recommended monitoring procedures Not available.

Derived no effect levels (DNELs) Not available.

Predicted no effect concentrations (PNECs) Not available.

8.2. Exposure controls

Appropriate engineering controls Good general ventilation should be used. Ventilation rates should be matched to conditions. If applicable, use process enclosures, local exhaust ventilation, or other engineering controls to maintain airborne levels below recommended exposure limits. If exposure limits have not been established, maintain airborne levels to an acceptable level.

Individual protection measures, such as personal protective equipment

General information Not available.

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

Skin protection

- Hand protection Wear appropriate chemical resistant gloves.

- Other Wear appropriate chemical resistant clothing. Use of an impervious apron is recommended.

Respiratory protection If ventilation is insufficient, suitable respiratory protection must be provided.

Thermal hazards Not available.

Hygiene measures Keep away from food and drink. Always observe good personal hygiene measures, such as washing after handling the material and before eating, drinking, and/or smoking. Routinely wash work clothing and protective equipment to remove contaminants.

Environmental exposure controls Not available.

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Appearance

Physical state	Solid.
Form	Not available.
Colour	Not available.
Odour	Not available.
Odour threshold	Not available.
pH	Not available.
Melting point/freezing point	-15,4 °C (4,28 °F) estimated
Initial boiling point and boiling range	72,4 °C (162,32 °F) estimated
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.
Vapour pressure	146,7 hPa estimated
Vapour 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.
Explosive properties	Not available.
Oxidising properties	Not available.
9.2. Other information	No relevant additional information available.

SECTION 10: Stability and reactivity

10.1. Reactivity	Not available.
10.2. Chemical stability	Not available.
10.3. Possibility of hazardous reactions	Not available.
10.4. Conditions to avoid	Not available.
10.5. Incompatible materials	Strong oxidising agents.
10.6. Hazardous decomposition products	Not available.

SECTION 11: Toxicological information

General information Not available.

Information on likely routes of exposure

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

11.1. Information on toxicological effects

Acute toxicity

Components	Species	Test Results
TRIFLUOROACETIC ACID . . . % (CAS 76-05-1)		
Acute		
Oral		
LD50	Rat	200 mg/kg

Skin corrosion/irritation Not available.

Serious eye damage/eye irritation Not available.

Respiratory sensitisation Not available.

Skin sensitisation Not available.

Germ cell mutagenicity Not available.

Carcinogenicity

Hungary. 26/2000 EüM Ordinance on protection against and preventing risk relating to exposure to carcinogens at work (as amended)

Not listed.

Reproductive toxicity Not available.

Specific target organ toxicity - single exposure Not available.

Specific target organ toxicity - repeated exposure Not available.

Aspiration hazard Not available.

Mixture versus substance information Not available.

Other information Not available.

SECTION 12: Ecological information

12.1. Toxicity No toxicity data noted for the ingredient(s).

12.2. Persistence and degradability Not available.

12.3. Bioaccumulative potential Not available.

Partition coefficient n-octanol/water (log Kow) Not available.

Bioconcentration factor (BCF) Not available.

12.4. Mobility in soil Not available.

12.5. Results of PBT and vPvB assessment Not a PBT or vPvB substance or mixture.

12.6. Other adverse effects Not available.

SECTION 13: Disposal considerations

13.1. Waste treatment methods

Residual waste Dispose of in accordance with local regulations.

Contaminated packaging Not available.

EU waste code Not available.

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

SECTION 14: Transport information

ADR

14.1. UN number UN2699

14.2. UN proper shipping name TRIFLUOROACETIC ACID

14.3. Transport hazard class(es)

Class 8

Subsidiary risk -

Label(s) 8

Hazard No. (ADR) 88

Tunnel restriction code E

14.4. Packing group I
14.5. Environmental hazards No.
14.6. Special precautions for user Not available.

RID

14.1. UN number UN2699
14.2. UN proper shipping name TRIFLUOROACETIC ACID
14.3. Transport hazard class(es)
Class 8
Subsidiary risk -
Label(s) 8
14.4. Packing group I
14.5. Environmental hazards No.
14.6. Special precautions for user Not available.

ADN

14.1. UN number UN2699
14.2. UN proper shipping name TRIFLUOROACETIC ACID
14.3. Transport hazard class(es)
Class 8
Subsidiary risk -
Label(s) 8
14.4. Packing group I
14.5. Environmental hazards No.
14.6. Special precautions for user Not available.

IATA

14.1. UN number UN3466
14.2. UN proper shipping name Metal carbonyls, solid, n.o.s. (Molybdenum hexacarbonyl)
14.3. Transport hazard class(es)
Class 6.1
Subsidiary risk -
14.4. Packing group III
14.5. Environmental hazards No.
14.6. Special precautions for user Not available.

IMDG

14.1. UN number UN3466
14.2. UN proper shipping name Metal carbonyls, solid, n.o.s. (Molybdenum hexacarbonyl)
14.3. Transport hazard class(es)
Class 6.1
Subsidiary risk -
14.4. Packing group III
14.5. Environmental hazards
Marine pollutant No.
EmS Not available.
14.6. Special precautions for user Not available.

ADN; ADR; RID

IATA; IMDG

SECTION 15: Regulatory information

15.1. Safety, health and environmental regulations/legislation specific for the substance or mixture

EU regulations

Regulation (EC) No. 1005/2009 on substances that deplete the ozone layer, Annex I and II, as amended

Not listed.

Regulation (EU) 2019/1021 On persistent organic pollutants (recast), as amended

Not listed.

Regulation (EU) No. 649/2012 concerning the export and import of dangerous chemicals, Annex I, Part 1 as amended

Not listed.

Regulation (EU) No. 649/2012 concerning the export and import of dangerous chemicals, Annex I, Part 2 as amended

Not listed.

Regulation (EU) No. 649/2012 concerning the export and import of dangerous chemicals, Annex I, Part 3 as amended

Not listed.

Regulation (EU) No. 649/2012 concerning the export and import of dangerous chemicals, Annex V as amended

Not listed.

Regulation (EC) No. 166/2006 Annex II Pollutant Release and Transfer Registry, as amended

Not listed.

Regulation (EC) No. 1907/2006, REACH Article 59(10) Candidate List as currently published by ECHA

Not listed.

Authorisations

Regulation (EC) No. 1907/2006, REACH Annex XIV Substances subject to authorization, as amended

Not listed.

Restrictions on use

Regulation (EC) No. 1907/2006, REACH Annex XVII Substances subject to restriction on marketing and use as amended

Not listed.

Directive 2004/37/EC: on the protection of workers from the risks related to exposure to carcinogens and mutagens at work, as amended.

Not listed.

Other EU regulations

Directive 2012/18/EU on major accident hazards involving dangerous substances, as amended

Not listed.

National regulations Not available.

15.2. Chemical safety assessment Not available.

SECTION 16: Other information

List of abbreviations	Not available.
References	Not available.
Information on evaluation method leading to the classification of mixture	Not available.
Training information	Not available.