



SAFETY DATA SHEET

according to Regulation (EC) No 1907/2006 (REACH) as amended

TSP F35, TSP E20, TSP D20

Creation date 02nd December 2022
Revision date Version 1.0

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

1.1. Product identifier

TSP F35, TSP E20, TSP D20

Substance / mixture

mixture

1.2. Relevant identified uses of the substance or mixture and uses advised against Mixture's intended use

For launching / flying model rockets, rocket gliders and model rocket cars.

Mixture uses advised against

The product should not be used in ways other than those referred in Section 1.

1.3. Details of the supplier of the safety data sheet

Supplier

Name or trade name

Piotr Tendera Rocket Motors

Address

Wodzisławska 177b, Rybnik, 44-200

Poland

Phone

+48 500854716

E-mail

tenderamotors@gmail.com

Competent person responsible for the safety data sheet

Name

Piotr Tendera Rocket Motors

E-mail

tenderamotors@gmail.com

1.4. Emergency telephone number

European emergency number: 112

SECTION 2: Hazards identification

2.1. Classification of the substance or mixture

Classification of the mixture in accordance with Regulation (EC) No 1272/2008

The mixture is classified as dangerous.

Expl. 1.4, H204

Full text of all classifications and hazard statements is given in the section 16.

Most serious adverse physico-chemical effects

Fire or projection hazard.

2.2. Label elements

Hazard pictogram



Signal word

Warning

Hazard statements

H204

Fire or projection hazard.

Precautionary statements

P102

Keep out of reach of children.

P210

Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.

P234

Keep only in original packaging.

P401

Store in accordance with regional regulations.

P501

Dispose of contents/container to the hazardous waste collection point.



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2.3. Other hazards

The mixture does not contain substances with endocrine disrupting properties in accordance with the criteria set out in Commission Delegated Regulation (EU) 2017/2100 or Commission Regulation (EU) 2018/605. Mixture does not contain any substance meet the criteria for PBT or vPvB in accordance with Annex XIII of Regulation (EC) No. 1907/2006 (REACH) as amended.

SECTION 3: Composition/information on ingredients

3.2. Mixtures

Chemical characterization

Mixture of substances and additives specified below.

Mixture contains these hazardous substances and substances with the highest permissible concentration in the working environment

Identification numbers	Substance name	Content in % weight	Classification according to Regulation (EC) No 1272/2008	Note
Index: 017-008-00-5 CAS: 7778-74-7 EC: 231-912-9	potassium perchlorate	60-80	Ox. Sol. 1, H271 Acute Tox. 4, H302	
	Phenolic resin	18-30	not classified as dangerous	
CAS: 7757-79-1 EC: 231-818-8 Registration number: 01-2119488224-35-XXXX	Potassium nitrate	3-6	Ox. Sol. 3, H272	
CAS: 16291-96-6 EC: 240-383-3	Charcoal	1-2	not classified as dangerous	
Index: 016-094-00-1 CAS: 7704-34-9 EC: 231-722-6 Registration number: 01-2119487295-27-XXXX	sulfur	1-2	Skin Irrit. 2, H315	

Full text of all classifications and hazard statements is given in the section 16.

SECTION 4: First aid measures

4.1. Description of first aid measures

Take care of your own safety. If any health problems are manifested or if in doubt, inform a doctor and show him information from this safety data sheet. If unconscious, put the person in the stabilized (recovery) position on his side with his head slightly bent backwards and make sure that airways are free; never induce vomiting. If the person vomits by himself, make sure that the vomit is not inhaled. In life threatening conditions first of all provide resuscitation of the affected person and ensure medical assistance. Respiratory arrest - provide artificial respiration immediately. Cardiac arrest - provide indirect cardiac massage immediately.

If inhaled

Unlikely.

If on skin

Wash skin with water and soap.

If in eyes

Rinse eyes immediately with a flow of running water, open the eyelids (also using force if needed); remove contact lenses immediately if worn by the affected person. Rinsing should continue at least for 10 minutes.

If swallowed

Rinse out the mouth with clean water. In the event of issues, find medical help.



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4.2. Most important symptoms and effects, both acute and delayed

If inhaled

Not expected.

If on skin

Not expected.

If in eyes

Not expected.

If swallowed

Not expected.

4.3. Indication of any immediate medical attention and special treatment needed

Symptomatic treatment.

SECTION 5: Firefighting measures

5.1. Extinguishing media

Suitable extinguishing media

Carbon dioxide, powder, water spray jet, water mist.

Unsuitable extinguishing media

Water - full jet.

5.2. Special hazards arising from the substance or mixture

Dust may form explosive mixture with air. In the event of fire, carbon monoxide, carbon dioxide and other toxic gases may arise. Inhalation of hazardous degradation (pyrolysis) products may cause serious health damage.

5.3. Advice for firefighters

Self-Contained Breathing Apparatus (SCBA) with a chemical protection suit only where personal (close) contact is likely. Use a self-contained breathing apparatus and full-body protective clothing. Do not allow run-off of contaminated fire extinguishing material to enter drains or surface and ground water. Fight fire with normal precautions from a reasonable distance. DO NOT fight fire when fire reaches explosives. Evacuate area.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

Fire or projection hazard. Use personal protective equipment for work. Follow the instructions in the Sections 7 and 8.

6.2. Environmental precautions

Prevent contamination of the soil and entering surface or ground water.

6.3. Methods and material for containment and cleaning up

Place the product mechanically in an appropriate manner. Dispose of the collected material according to the instructions in the section 13.

6.4. Reference to other sections

See the Section 7, 8 and 13.

SECTION 7: Handling and storage

7.1. Precautions for safe handling

Keep packaging closed and only open for extraction of product.

7.2. Conditions for safe storage, including any incompatibilities

Keep only in original packaging. Do not store together with food, drink and animal feed. Store in a dry place.

Storage class

1 - Explosive substances

7.3. Specific end use(s)

not available



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SECTION 8: Exposure controls/personal protection

8.1. Control parameters

The mixture contains substances for which occupational exposure limits are set.

DNEL

Potassium nitrate

Workers / consumers	Route of exposure	Value	Effect	Value determination	Source
Consumers	Oral	12.5 mg/kg bw/day	Systemic chronic effects		
Consumers	Inhalation	10.9 mg/m ³	Systemic chronic effects		
Workers	Inhalation	36.7 mg/m ³	Systemic chronic effects		
Consumers	Dermal	12.5 mg/kg bw/day	Systemic chronic effects		
Workers	Dermal	20.8 mg/kg bw/day	Systemic chronic effects		

PNEC

Potassium nitrate

Route of exposure	Value	Value determination	Source
Drinking water	0.45 mg/l		
Seawater	0.045 mg/l		
Microorganisms in wastewater treatment plants	18 mg/l		

8.2. Exposure controls

Do not eat, drink and smoke during work. Wash your hands thoroughly with water and soap after work and before breaks for a meal and rest.

Eye/face protection

It is not needed.

Skin protection

It is not needed. Contaminated skin should be washed thoroughly.

Respiratory protection

It is not needed.

Thermal hazard

Not available.

Environmental exposure controls

Observe usual measures for protection of the environment, see Section 6.2.

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Physical state	solid
Colour	red
Odour	without fragrance
Melting point/freezing point	data not available
Boiling point or initial boiling point and boiling range	data not available
Flammability	data not available
Lower and upper explosion limit	data not available
Flash point	420 °C



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Auto-ignition temperature	420 °C
Decomposition temperature	data not available
pH	data not available
Kinematic viscosity	data not available
Solubility in water	data not available
Partition coefficient n-octanol/water (log value)	data not available
Vapour pressure	data not available
Density and/or relative density	data not available
Relative vapour density	data not available
Particle characteristics	data not available
Form	solid: particulate/powder

9.2. Other information

Explosive properties	minor explosion hazard
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SECTION 10: Stability and reactivity

10.1. Reactivity

not available

10.2. Chemical stability

The product is stable under normal conditions.

10.3. Possibility of hazardous reactions

Unknown.

10.4. Conditions to avoid

The product is stable and no degradation occurs under normal use. Protect against flames, sparks, overheating and against frost.

10.5. Incompatible materials

Not known.

10.6. Hazardous decomposition products

Not developed under normal uses. Dangerous outcomes such as carbon monoxide and carbon dioxide are formed at high temperature and in fire.

SECTION 11: Toxicological information

11.1. Information on hazard classes as defined in Regulation (EC) No 1272/2008

No toxicological data is available for the mixture.

Acute toxicity

Based on available data the classification criteria are not met.

Potassium nitrate

Route of exposure	Parameter	Value	Exposure time	Species	Sex
Oral	LD ₅₀	>2000 mg/kg		Rat	
Dermal	LD ₅₀	>5000 mg/kg		Rat	
Inhalation	LC ₅₀	>0.527 mg/l		Rat	

sulfur

Route of exposure	Parameter	Value	Exposure time	Species	Sex
Inhalation (dust/mist)	LC ₅₀	>5.4 mg/l	4 hour	Rat	
Oral	LD ₅₀	>2000 mg/kg		Rat	
Dermal	LD ₅₀	>2000 mg/kg		Rat	

Skin corrosion/irritation

Based on available data the classification criteria are not met.

Serious eye damage/irritation

Based on available data the classification criteria are not met.



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Respiratory or skin sensitisation

Based on available data the classification criteria are not met.

Germ cell mutagenicity

Based on available data the classification criteria are not met.

Carcinogenicity

Based on available data the classification criteria are not met.

Reproductive toxicity

Based on available data the classification criteria are not met.

Toxicity for specific target organ - single exposure

Based on available data the classification criteria are not met.

Toxicity for specific target organ - repeated exposure

Based on available data the classification criteria are not met.

Aspiration hazard

Based on available data the classification criteria are not met.

11.2. Information on other hazards

The mixture does not contain substances with endocrine disrupting properties in accordance with the criteria set out in Commission Delegated Regulation (EU) 2017/2100 or Commission Regulation (EU) 2018/605.

SECTION 12: Ecological information

12.1. Toxicity

Acute toxicity

Potassium nitrate

Parameter	Value	Exposure time	Species	Environment
LC ₅₀	1378 mg/l	96 hour	Fishes (Poecilia reticulata)	
LC ₅₀	>98.9 mg/l	96 hour	Fishes (Oncorhynchus mykiss)	
EC ₅₀	490 mg/l	48 hour	Daphnia (Daphnia magna)	
EC ₅₀	>1700 mg/l	10 day	Algae	

potassium perchlorate

Parameter	Value	Exposure time	Species	Environment
LC ₅₀	1850 mg/l	48 hour	Fishes (Leuciscus idus)	
EC ₅₀	670 mg/l	24 hour	Daphnia (Daphnia magna)	

sulfur

Parameter	Value	Exposure time	Species	Environment
LC ₅₀	866 mg/l	96 hour	Fishes (Branchydanio rerio)	

Chronic toxicity

Potassium nitrate

Parameter	Value	Exposure time	Species	Environment
NOEC	>245 mg/l	12 day	Invertebrates (Hydra attenuata)	
TLm	534 mg/l	28 day	Invertebrates (Nereis grubei, Nematodes arenaceodentata, Dorsililea articulata, Capitella capitata)	



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12.2. Persistence and degradability

Easily degradable.

12.3. Bioaccumulative potential

Not available.

12.4. Mobility in soil

Not available.

12.5. Results of PBT and vPvB assessment

Product does not contain any substance meeting the criteria for PBT or vPvB in accordance with the Annex XIII of Regulation (EC) No 1907/2006 (REACH) as amended.

12.6. Endocrine disrupting properties

The mixture does not contain substances with endocrine disrupting properties in accordance with the criteria set out in Commission Delegated Regulation (EU) 2017/2100 or Commission Regulation (EU) 2018/605.

12.7. Other adverse effects

Not available.

SECTION 13: Disposal considerations

13.1. Waste treatment methods

Hazard of environmental contamination; dispose of the waste in accordance with the local and/or national regulations. Proceed in accordance with valid regulations on waste disposal. Any unused product and contaminated packaging should be put in labelled containers for waste collection and submitted for disposal to a person authorised for waste removal (a specialized company) that is entitled for such activity. Do not empty unused product in drainage systems. The product must not be disposed of with municipal waste. Empty containers may be used at waste incinerators to produce energy or deposited in a dump with appropriate classification. Perfectly cleaned containers can be submitted for recycling.

Waste management legislation

Directive 2008/98/EC of the European Parliament and of the Council of 19 November 2008 on waste, as amended. Decision 2000/532/EC establishing a list of wastes, as amended.

Waste type code

20 03 01 mixed municipal waste

SECTION 14: Transport information

14.1. UN number or ID number

UN 0432

14.2. UN proper shipping name

ARTICLES, PYROTECHNIC

14.3. Transport hazard class(es)

1 Explosive substances and articles

14.4. Packing group

II - substances presenting medium danger

14.5. Environmental hazards

not relevant

14.6. Special precautions for user

Reference in the Sections 4 to 8.

14.7. Maritime transport in bulk according to IMO instruments

not relevant



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Additional information

Hazard identification No. 
UN number 0432
Classification code 1.4S
Safety signs 1.4



Air transport - ICAO/IATA

Packaging instructions passenger 135
Cargo packaging instructions 135

Marine transport - IMDG

EmS (emergency plan) F-B, S-X

SECTION 15: Regulatory information

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

Regulation (EC) No. 1907/2006 of the European Parliament and of the Council of 18th December 2006 concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH), establishing the European Chemicals Agency, amending Directive 1999/45/EC and repealing Council Regulation (EEC) No. 793/93 and Commission Regulation (EC) No. 1488/94 as well as Council Directive 76/769/EEC and Commission Directives 91/155/EEC, 93/67/EEC, 93/105/EC and 2000/21/EC, as amended. REGULATION (EC) No. 1272/2008 OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL as amended. Product contains restricted explosives precursors: Making available, introduction, possession and use according to Regulation (EU) 2019/1148, Article 5. Product contains reportable explosives precursors: Reporting of suspicious transactions, disappearances and thefts according to Regulation (EU) 2019/1148, Article 9.

15.2. Chemical safety assessment

A chemical safety assessment has not been carried out (mixture).

SECTION 16: Other information

A list of standard risk phrases used in the safety data sheet

H204 Fire or projection hazard.
H271 May cause fire or explosion; strong oxidiser.
H272 May intensify fire; oxidiser.
H302 Harmful if swallowed.
H315 Causes skin irritation.

Guidelines for safe handling used in the safety data sheet

P102 Keep out of reach of children.
P210 Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.
P234 Keep only in original packaging.
P501 Dispose of contents/container to the hazardous waste collection point.
P401 Store in accordance with regional regulations.

Other important information about human health protection

The product must not be - unless specifically approved by the manufacturer/importer - used for purposes other than as per the Section 1. The user is responsible for adherence to all related health protection regulations.

Key to abbreviations and acronyms used in the safety data sheet

ADR European agreement concerning the international carriage of dangerous goods by road
BCF Bioconcentration Factor



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CAS	Chemical Abstracts Service
CLP	Regulation (EC) No 1272/2008 on classification, labelling and packaging of substance and mixtures
DNEL	Derived no-effect level
EC ₅₀	Concentration of a substance when it is affected 50% of the population
EINECS	European Inventory of Existing Commercial Chemical Substances
EmS	Emergency plan
ES	Identification code for each substance listed in EINECS
EU	European Union
EuPCS	European Product Categorisation System
IATA	International Air Transport Association
IBC	International Code For The Construction And Equipment of Ships Carrying Dangerous Chemicals
ICAO	International Civil Aviation Organization
IMDG	International Maritime Dangerous Goods
INCI	International Nomenclature of Cosmetic Ingredients
ISO	International Organization for Standardization
IUPAC	International Union of Pure and Applied Chemistry
LC ₅₀	Lethal concentration of a substance in which it can be expected death of 50% of the population
LD ₅₀	Lethal dose of a substance in which it can be expected death of 50% of the population
log Kow	Octanol-water partition coefficient
MARPOL	International Convention for the Prevention of Pollution from Ships
NOEC	No observed effect concentration
OEL	Occupational Exposure Limits
PBT	Persistent, Bioaccumulative and Toxic
PNEC	Predicted no-effect concentration
ppm	Parts per million
REACH	Registration, Evaluation, Authorisation and Restriction of Chemicals
RID	Agreement on the transport of dangerous goods by rail
UN	Four-figure identification number of the substance or article taken from the UN Model Regulations
UVCB	Substances of unknown or variable composition, complex reaction products or biological materials
VOC	Volatile organic compounds
vPvB	Very Persistent and very Bioaccumulative
Acute Tox.	Acute toxicity
Expl.	Explosive
Ox. Sol.	Oxidising solid
Skin Irrit.	Skin irritation

Training guidelines

Inform the personnel about the recommended ways of use, mandatory protective equipment, first aid and prohibited ways of handling the product.

Recommended restrictions of use

not available

Information about data sources used to compile the Safety Data Sheet

REGULATION (EC) No. 1907/2006 OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL (REACH) as amended. REGULATION (EC) No. 1272/2008 OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL as amended. Data from the manufacturer of the substance / mixture, if available - information from registration dossiers.

More information

Classification procedure - calculation method.



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Statement

The safety data sheet provides information aimed at ensuring safety and health protection at work and environmental protection. The provided information corresponds to the current status of knowledge and experience and complies with valid legal regulations. The information should not be understood as guaranteeing the suitability and usability of the product for a particular application.