EXPLOSIA®

VÚPCH®

SPECIAL PRODUCTS

Kč 200.— ČÍSLO 0003328

AKCIE

ČESKOSLOVENSKÉ AKC. TOVÁRNY NA LÁTKY VÝBUŠNÉ

NA OBNOS

DVĚ STĚ KORUN č,

které se jmenu České průmyslové banco v Praze jakožto vlastníku této akcie zajišťují všechna práva k veškerému jmění společnosti, která dle stanov společnosti každému akcionáři přísluší.

Akcie mohou býti převedeny též na jiné osoby, převedení to musí se však státi se svolením správní rady, při čemž musí býti ta které akcie převáděme, aby její převedení v knize akcijní zaznamenáno býti mohlo.

V PRAZE, DNE 3. PROSINCE 1920.

Československá akciová továrna na látky výbušné.

SINCE 1920

Explosia a.s.

Explosia a.s. is the traditional and most important Czech manufacturer of explosives, whose history dates back to 1920, when the "Czechoslovak Joint Stock Factory for Explosive Substances" was founded. The tradition of the name Explosia a.s. dates back to 1934 and more recently to 1998.

Explosia a.s. is 100% owned by the Czech state and is an independent business company with a significant position on the explosives market in the Czech Republic and Slovakia.

Explosia a.s. is an internationally known and important manufacturer of industrial explosives and smokeless powders, which it exports to numerous countries in the European Union and beyond.

Explosia a.s. has a qualified production and warehouse capacity, which enables it to offer its customers a wide range of specialties in the field of explosives.

Research and development in the field of explosives – special products

Explosia has had its own research and development facilities (R and X departments) since its inception. Since 1954, these facilities had operated as the Research Institute of Industrial Chemistry, with its scope of activities covering the whole Czechoslovakia. Since 1993, the Institute (VÚPCH) has focused mainly on research and development activities for Explosia a.s. This institute provides research and development in the field of explosives and ammunition not only for Explosia a.s., but also for other partners in the Czech Republic and abroad. In addition to research and development, the results of which are intended for use in industrial applications as well as in the military field, VÚPCH also offers services in the field of analytical chemistry, testing and safety engineering for explosives and ammunition, small-tonnage production of new energetic materials and special explosives, as well as the production of pyrotechnic components for aircraft rescue systems.

CERTIFICATE

for participating in

REVIEW AND EVALUATION OF ACTIVITIES IN THE AREA OF CORPORATE SOCIAL RESPONSIBILITY

to company

Explosia a.s.

valid from 25.10.2023 till 30.9.2026

Part 1. Introduction	100 %	GOLD
Part 2. Global	100 %	GOLD
Part 3. Economic Area	94 %	GOLD
Part 4. Social Area + OSH	97 %	GOLD
Part 5. Environmental Area	94 %	GOLD
Final Assessment	97 %	GOLD

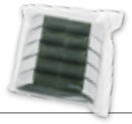
Management of quality systems, environment, responsible business and social responsibility

Explosia a.s. has been a holder of the ISO 9001 quality management system certificate since 1998 and the ISO 14001 environmental management system certificate since 2009. In accordance with the European Directive 2014/28/EU, the quality management system and each product are separately supervised and certified by the European testing institute VVUÚ Ostrava Radvanice. Explosia a.s. is a holder of a social responsibility management system certificate according to ISO 26000 since 2020 and since 2004 also the Responsible Care certificate – responsible business in chemistry (environmental management, health and safety protection). Since 2007, Explosia has been a holder of a certificate from the Ministry of Defense of the Czech Republic according to the NATO allied publication AQAP 2110 (ČOS 051672) (As a renowned supplier of military equipment to NATO armies). In addition, the most important laboratories of Explosia a.s. are accredited according to ISO 17025 (testing laboratory no. 1167.2 Department of Analytics and Testing).

OSVĚDČENÍ

Product overview

Semtex RAZOR®



Semtex® RAZOR BOOSTER

Semtex® RAZOR BOOSTER S

Semtex® PL SE M

Semtex® PL SE M LCT

Semtex® PASTEX 14

EXPLOSIVE A-IX-1

Semtex® DESINTEGRATOR

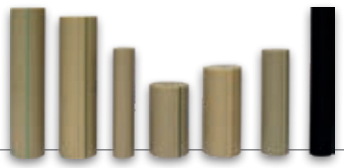
DETEX®

DETEX®

EXPLOSIVES SAMPLE KIT

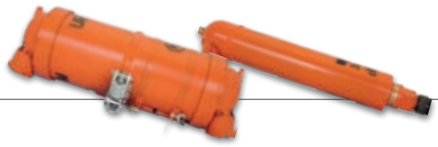
IRTG

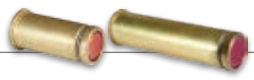
DYNAMIC PROTECTION ELEMENTS



TPH ELEMENTS

155 mm BCSM





PYROTECHNIC ELEMENTS

SPECIAL PRODUCTS

SEMTEX RAZOR®

FLEXIBLE LINEAR CUMULATIVE CHARGE

Flexible charge based on Semtex® PI SE M plastic explosive for structure/material cutting. Typical length 1 or 2 metres in various weights (length can be adjusted to customer requirements). Charge performance under water is limited.

UN number: 0288, CHARGES, SHAPED, FLEXIBLE, LINEAR, 1.1D

Features	Type of charge						
	RAZOR 6	**RAZOR 10**	**RAZOR 15**	**RAZOR 20**	**RAZOR 25**	**RAZOR 30**	**RAZOR 40**
Explosive weight ($g.m^{-1}$) *	50	140	310	550	860	1,250	2,200
Total weight ($g.m^{-1}$) *	140	390	860	1,500	2,400	3,500	6,000
Performance on steel plate (mm)	min. 6	min. 10	min. 15	min. 20	min. 25	min. 30	min. 40
Width (mm)	18	28	42	56	68	80	100
Height (mm)	12	20	29	39	49	59	77
Min. radius on pipe (mm)	20	35	50	60	75	90	120
Min. surface radius (mm)	90	150	220	300	375	450	600

* indicative values

RAZOR 6 **RAZOR 10** **RAZOR 15** **RAZOR 20**

Semtex RAZOR® when used

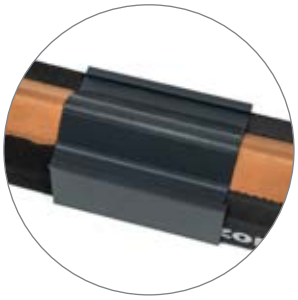
Also produced in the inert version for teaching and training use

RAZOR® LOCK

FOR THE JOINING OF Semtex RAZOR® CHARGES

RAZOR® Lock is used to join Semtex RAZOR® flexible cumulative charges of the same type to any desired length. The application is very quick thanks to a simple one-click system.

RAZOR® Lock pushes the limits of the use of Semtex RAZOR® cumulative charges to the level of no limit - charges can be shortened to the required length with just a spark-free knife or, conversely, extended without limitation.



RAZOR 25 **RAZOR 30** **RAZOR 40**

Semtex RAZOR® PACKAGING OPTIONS

Wooden crate

Cardboard box

SEMTEX® RAZOR Booster

BOOSTER

The Semtex® RAZOR Booster is designed specifically for the initiation of Semtex® RAZOR flexible cumulative charges. This booster can also be used to initiate other explosives such as Semtex® PI SE M sheet explosives. It is designed to be able to amplify the initiation power of a standard detonator.

Packed in a cardboard box or wooden crate.

UN number: 0042, BOOSTERS WITHOUT DETONATORS, 1.1D

Features	Values
Explosive content (PETN)	88 ± 2%
Density	min. 1.48 g.m^{-3}
Detonation velocity	min. 7,400 m.s^{-1}
DMNB content	min. 1.0%
Temperature range of use	-20 – +50 °C
Sensitivity to initiation	At least detonator No. 8
Weight	6.00 ± 0.25 g

SEMTEX® Booster S

BOOSTER

The Semtex® Booster S is designed to enhance the initiating power of a No. 8 detonator or detonating fuse with a specific gravity of at least 12 g.m^{-1}. No shortening or modification is permitted. The detonator must be inserted at least 15 mm into it, and the detonating fuse must pass through its entire length.

Packed in a cardboard box or wooden crate.

UN number: 0042, BOOSTERS WITHOUT DETONATORS, 1.1D

Features	Values
Explosive content (PETN)	88 ± 2%
Density	min. 1.48 g.m^{-3}
Detonation velocity	min. 7,400 m.s^{-1}
DMNB content	min. 1.0%
Temperature range of use	-20 – +50 °C
Sensitivity to initiation	min. detonator No. 8 or detonating fuse 12 g.m^{-1}
Weight	20.00 ± 1.00 g
Length	approx. 70 mm

SEMTEX® PL SE M

SHEET EXPLOSIVE

Sheets of plastic explosives for special blasting works.

Typical size 400 × 200 × 3 mm (dimensions can be changed according to customer requirements).

The product can be prepared on the basis of PETN, RDX, PETN/RDX, the minimum thickness of the PETN version is 0.8 mm, PETN/RDX 2 mm and RDX 3.0 mm.

Packed in a cardboard box or wooden crate.

UN number: 0084, EXPLOSIVE, BLASTING, TYPE D, 1.1D

Features	Typical analysis	Values
Explosive content (RDX, PETN)	88.0 %	88.0 ± 3.0 %
Density	1.56 g.cm^{-3}	min. 1.48 g.cm^{-3}
Vacuum test	0.20 cm^3.g^{-1}.h^{-1}.20	max. 1.0 cm^3.g^{-1}.h^{-1}.20
Detonation velocity	7,900 m.s^{-1}	min. 7,400 m.s^{-1}
DMNB content	1.1%	min. 1.0 %

SEMTEX® PL SE M LCT

TAPE EXPLOSIVE

Plastic explosive tapes for special blasting works.

Typical length 1 meter in various weights (length can be adjusted according to customer's request).

Packed in a cardboard box or wooden crate.

UN number: 0084, EXPLOSIVE, BLASTING, TYPE D, 1.1D

Features	Type of charge			
	LCT 20	LCT 55	LCT 205	LCT 740
Weight per metre	min. 20 kg	min. 55 kg	min. 205 kg	min. 740 kg
Performance on steel plate	~ 3 mm	~ 5 mm	~ 10 mm	~ 15 mm

Features	Values
Explosive content (RDX, PETN)	88.0 ± 3.0 %
Density	min. 1.48 g.cm^{-3}
Vacuum test	max. 1.0 cm^3.g^{-1}.h^{-1}.20
Detonation velocity	min. 7,400 m.s^{-1}
DMNB content	min. 1.0 %

SEMTEX® PasteX 14

PASTE EXPLOSIVE

RDX and PETN based paste explosive for special demolition works.

The use of paste explosive is advantageous when it is necessary to apply it in hard-to-reach places during demolition works. Packed in 500 g cartridges or 200 g tubes.

Packed in a cardboard box or wooden crate.

UN number: 0084, EXPLOSIVE, BLASTING, TYPE D, 1.1D

Features	Values
Explosive content (RDX, PETN)	86.0 ± 2.0%
Density	min. 1.55 $g.cm^{-3}$
Vacuum test	max. 0.5 $cm^3.g^{-1}.h^{-1}.20$
Detonation velocity	min. 7,600 $m.s^{-1}$
DMNB content	min. 1.0 %
Temperature range of use	-30 – +60 °C

EXPLOSIVE A-IX-1

A-IX-1 is a mixture of hexogen (RDX) and wax coloured orange dye.

Packed in cardboard boxes of 20 kg and on pallets.

UN number: 0483, CYCLOTRIMETHYLENETRINITRAMINE, DESENSITISED, 1.1D

Features	Values
Appearance	Orange dust
Hexogen melting point (RDX)	min. 190 °C
Moisture and volatiles	max. 0.1 %
Phlegmatising agent	5.0–6.5 %
Particles insoluble in acetone	max. 0.3 %
Granulation	
Residues for nets with a mesh size of 1.6 mm	0 %
CE number	EXP 1395-006/2016

SEMTEX® DISINTEGRATOR

Means designed to combat terrorism - special cartridges used to "open" suspicious luggage and objects (suitcases, backpacks, barrels, wooden boxes, etc.) Semtex® Disintegrator uses the action of the so-called material cloud, when the energy of the explosion is transferred to the object by means of heavy powder material. A standard detonator is used to initiate Semtex® Disintegrators. Semtex® Disintegrators are offered in two variants.

Semtex® DISINTEGRATOR 13

It is designed to penetrate less rigid walls of objects such as suitcases, bags or backpacks from a distance of 10 to 80 cm. The cartridge contains 13 g of Semtex® explosive.

Semtex® DISINTEGRATOR 50

A more powerful version capable of penetrating through stronger walled objects such as barrels or wooden boxes. From a distance of 100 mm it is able to penetrate steel sheet up to 4 mm thick. The disintegrator contains 50 g of Semtex® explosive.

From a distance greater than 200 mm the disintegrator does not normally initiate emulsion, ANFO, TNT, AN/TNT, RDX, TNT, Semtex® explosives.

UN number: 0048, CHARGES, DEMOLITION, 1.1D

DETEX®

EXPLOSIVES DETECTION AND IDENTIFICATION SYSTEM

FOR AIRPORTS AND LOGISTICS CENTRES

The DETEX® system is based on color reactions of detection solutions with substances such as TNT, RDX, HMX, PETN, TETRYL and inorganic nitrates, which are contained in dynamite, smokeless powders, plastic explosives, powder explosives and DAP (ANFO). With the DETEX® system, the presence of perchlorates, chlorates and amateur-prepared explosives based on organic peroxides (TATP, TCAP, HMTD) can be identified just as easily.

The DETEX® detection kit contains six basic reagents enabling the detection of traces of explosives.

The system is designed for security, military, and civilian applications. To control objects that may be contaminated with explosives.

These objects can be luggage, clothing, parcels...

Detection is based on simple colour reactions of detection reagents with explosives.

Procedure:

- Performing a swab
- Applying the detection reagent
- Evaluation of the colour reaction against an attached colour scale

The reagents in one kit, when used according to the instructions, are sufficient for approximately 2,400 tests.

Benefits of theDETEX®kit

- Speed – test results are available within seconds
- Sensitivity - allows detection of trace amounts of explosives
- Ease of use
- Wide range of detected explosive substances
- Minimal occurrence of false alarms
- Low purchase price compared to competing devices
- Impossibility of overloading by the sample
- Independence from electric power
- No need for calibration unlike other systems

DETEX®

EXPLOSIVES DETECTION AND IDENTIFICATION KIT

The DETEX® system is based on color reactions of detection solutions with substances such as TNT, RDX, HMX, PETN, TETRYL and inorganic nitrates, which are contained in dynamite, smokeless powders, plastic explosives, powder explosives and DAP (ANFO). With the DETEX® system, the presence of perchlorates, chlorates and amateur-prepared explosives based on organic peroxides (TATP, TCAP, HMTD) can be identified just as easily.

The DETEX® kit contains numbered vials of detection reagent, swab test paper, evaluation chart, and protective gloves.

EXPLOSIVES SAMPLE KIT

FOR POLICE DOG TRAINING

It contains samples of Explosia a.s. products and other explosives:

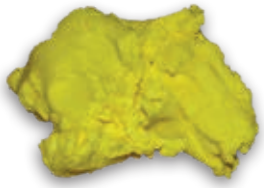
- Basic explosives (TNT, PETN, RDX, HMX, possibly HNS or Tetryl)
- Detection reagent (DMNB)
- Ammonium nitrate, powder, and emulsion explosives
- Dynamites
- Single- and double-base powders
- Black powder

50 g samples in PE packaging placed in individual sealed glass tubes or plastic bottles.

UN number: 0190, SAMPLES, EXPLOSIVE, OTHER THAN INITIATING EXPLOSIVES, 1.1D

IRTG

PLASTIC MASS



Plastic mass simulating plastic explosives containing hexogen or penthrite

- **IRTG H 20 WG** - contains 20% hexogen - yellow colour
- **IRTG P 20 WG** - contains 20% penthrite - reddish brown colour

Usable for

- training of X-ray explosive detector operators
- training of chemical explosive detector operators
- training of dogs to detect penthrite and hexogen-based plastic explosives

UN number: 3380, DESENSITISED, EXPLOSIVE, SOLID, N.O.S., 4.1D

NO NEED TO STORE IT AS EXPLOSIVE!

DYNAMIC PROTECTION ELEMENTS

FOR ARMOURED VEHICLES

Dynamic protection elements are components of the dynamic protection systems of T-55 and T-72 battle tanks. Their design ensures that the effect of cumulative-charge projectiles is minimised, even in tandem.

UN number: 0084, EXPLOSIVE, BLASTING, TYPE D, 1.1D

SOLID-PROPELLANT ELEMENTS

FOR ROCKET ENGINES

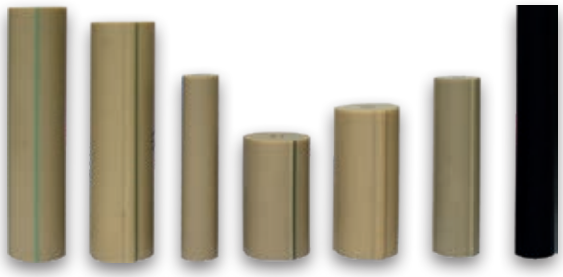
Double-base solid propellants.

Solid-propellant elements for rocket engines up to 48 mm diameter.

Applications:

- 122-KS - Križná object - container rocket
- Flight engine PG-7/PG-7M

UN number: 0349, ARTICLES, EXPLOSIVE, N.O.S.



LARGE-CALIBRE AMMUNITION

155 mm BMCS

MODULAR PROPELLANT SYSTEM FOR 155 mm CALIBRE HOWITZERS

The propellant system allows to cover ranges from 3 to 42 km.

- Universal for all types of 155 mm projectiles
- In compliance with the Ballistic Memorandum of Understanding (JBMoU)
- Applicable to 45 and 52 calibre barrel length weapon systems or legacy 39 calibre barrel length systems (5xTC-F maximum)
- Temperature range of use from -50 °C to +63 °C
- Fully combustible propelling-charge case
- Waterproof
- Low barrel wear
- Reduced muzzle flash
- For automatic and manual loading

The bi-modular charge system (BMCS) consists of two types of modules that differ in markings, colour, visible black stripe and shape.

- **BC-E is used for short ranges** (Zones 1-2)
- **TC-F is used for long ranges** (Zones 3-6)

UN number: 0242, CHARGES, PROPELLING, FOR CANNON

	BC-E	TC-F
Diameter	158 mm	158 mm
Length	155 mm	177 mm
Modules can be connected	NO	6xTC-F
Powder charge type	Single-base powder	Triple-base powder
Additives	YES	YES
Ignition	CBI+black powder	CBI+black powder
Weight of charge approx.	1.9 kg	2.8 kg
Weight of powder charge approximately	1,500 g	2,400 g
Shelf life	>15 years when stored in original intact packaging (at average temperature of +25 °C)	

155 mm 52 cal/24 dm³

ERFB/BT (44 kg) eq. L15A1/A2		BC-E	2xBC-E	3xTC-F	4xTC-F	5xTC-F	6xTC-F
Zone		1	2	3	4	5	6
Muzzle velocity	m/s	315	470	560	690	817	945
Pressure (max.)	MPa	70	200	95	150	230	355
Range (max.)	km	8.0	13.0	15.5	20.0	24.5	>30.0
Overlap	%		min. 15	min. 30	min. 30	min. 30	min. 30
Maximum range with ERFB/BB (47 kg) is 42 km							

COMPONENTS FOR ASSEMBLING OF MODULAR PROPELLING CHARGES

We supply individual components for the production of modular propelling charges:

- Single-base powders
- Triple-base powders
- Combustible parts
- Ignition sets
- Internal packages
- Other supply components (flame reducer, decoppering agents, covering Nitrofilm,...)

Modifications are possible upon agreement.

RESCUE SYSTEMS FOR AIRCRAFT

PYROTECHNIC COMPONENTS

FOR AERO AIRCRAFT RESCUE SYSTEMS

Rocket engine URM-1, URM-1M

- Acceleration of pilot seat during ejection

UN number: 0281, ROCKET MOTORS, 1.2C

Rocket engine ROP

- Emergency ejection of the aircraft cockpit canopy

UN number: 0281, ROCKET MOTORS, 1.2C

Cartridge PP-POP

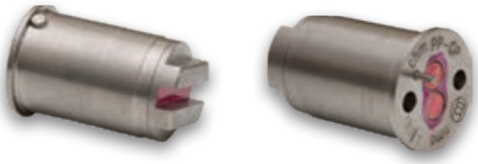
- Activation of the cockpit canopy ejection mechanism

Cartridge PP-TVM

- Extension of the telescopic mechanism

Cartridge PP-GP

- Activation of the pyromechanism of the rescue system



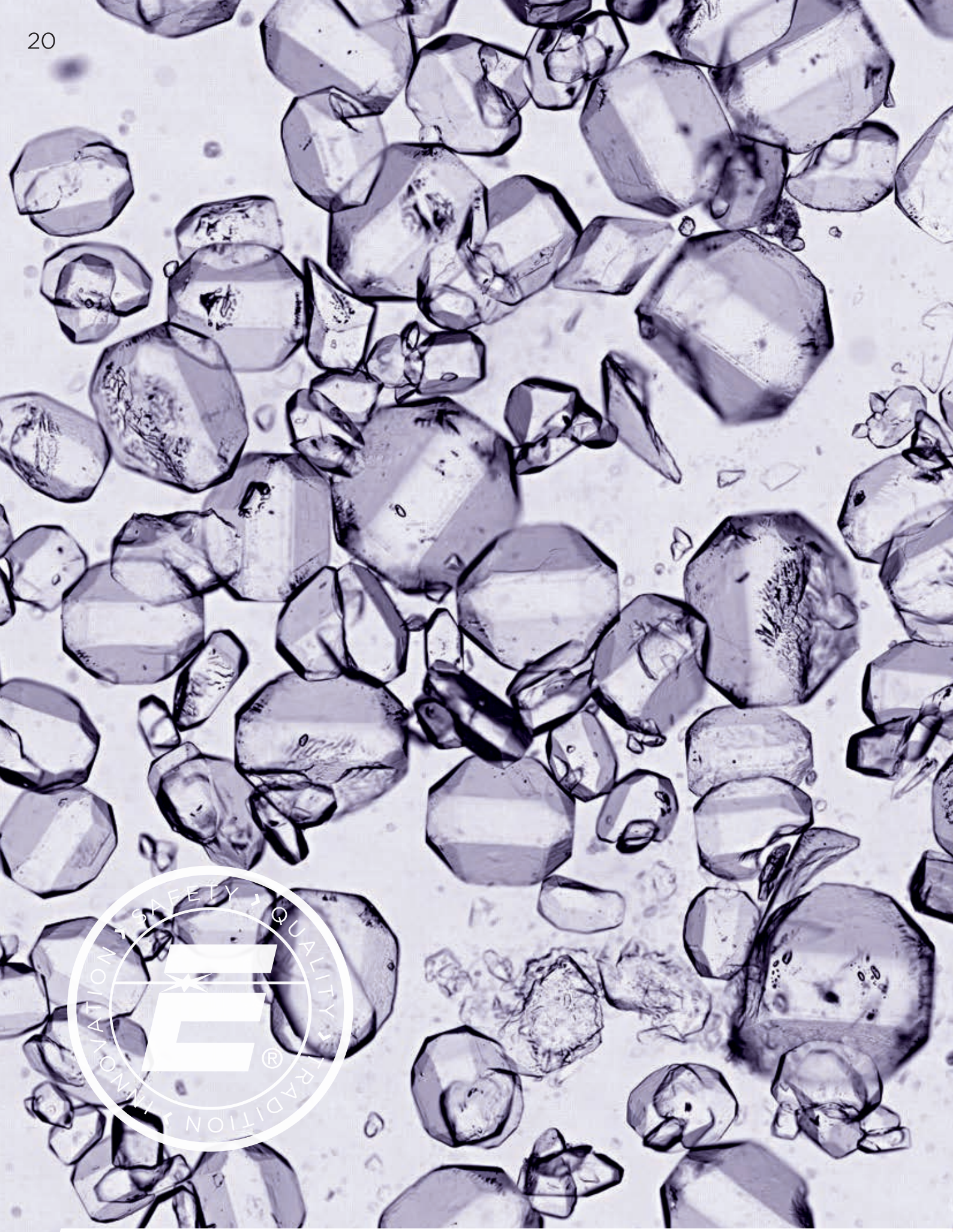
Cartridge PP-VVPR

- Activation of the pyromechanism of the pilot fastening system

Cartridge VMP-2M(8)

- Activation of the rescue parachute mechanics

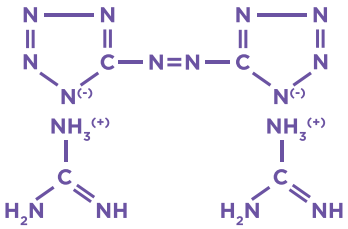
UN number: 0381, PYROCARTRIDGES, CARTRIDGES, POWER, DEVICE, 1.2C
or 0323, PYROCARTRIDGES, CARTRIDGES, POWER, DEVICE, 1.4S



ENERGETIC MATERIALS

GZT BIGUANIDINE-5,5′-AZOTETRAZOLATE

GZT is a yellow crystalline substance with a high nitrogen content. It is used in gas generators (e.g. seat belt tightener in cars), airbags, and special fire extinguishers.



Classification:
Not classified

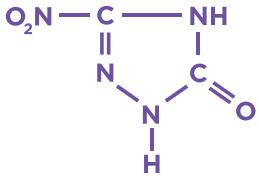
Quantity supplied:
This is a semi-operational and laboratory preparation in limited quantities.

Features	Values
Appearance	Yellow powder
Purity	min. 98.5 %
Melting point	min. 243 °C
Ash	max. 0.15 %
Water content	max. 0.50 %

Chemical formula: $C_4H_{12}N_{16}$
CAS: [142353-07-9]
Molar mass: 284.24 g.mol^{-1}

NTO 3-NITRO-1,2,4-TRIAZOL-5-ONE

NTO is a yellowish crystalline substance with reduced sensitivity to mechanical stimuli. It is used for the production of low-vulnerability special-purpose ammunition.



Classification:
UN 0490 OXYNITROTRIAZOL 1.1D

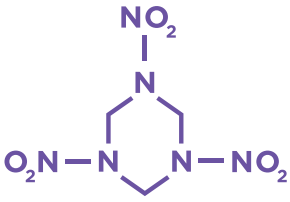
Quantity supplied:
This is a semi-operational and laboratory preparation in limited quantities.

Features	Values
Appearance	Yellowish powder
Active ingredient content	min. 99.0 %
Melting point	min. 268 °C
Moisture	max. 0.50 %
Ash	max. 0.15 %

Chemical formula: $C_2H_2N_4O_3$
CAS: [932-64-9]
Molar mass: 130.10 g.mol^{-1}

RDX-R SPHERICAL HEXOGEN

RDX-R is a white substance with spherical crystal shapes. It is used for special applications, e.g. as a component of thermostable detonators, detonating fuses, and special paste explosives.



Classification:
UN 0072, CYCLOTRIMETHYLENETRINITRAMINE (CYCLONITE, HEXOGEN, RDX), desensitised, moistened with at least 15% w/w water.

Quantity supplied:
This is a semi-operational and laboratory preparation in limited quantities.

Features	Values
Appearance	White crystalline substance
Active ingredient content	min. 99.5 %
Melting point (decomposition point)	204 °C
Ash	max. 0.04 %
Acidity	max. 0.02 %
Insoluble residues	max. 0.01 %
Moisture	max. 0.10 %

Chemical formula: $C_3H_6N_6O_6$
CAS: [121-82-4]
Molar mass: 222.00 g.mol^{-1}

ACCREDITED SERVICES

SERVICES

OF ACCREDITED TESTING LABORATORIES

Explosia a.s. has the following testing laboratories:

- Ballistic testing laboratory
- Safety engineering laboratory
- GC/MS and HPLC laboratories.

Scope of completed tests

No.	Test procedure/method identification	Test subject
1.	Maximum powder gas pressure test	Smokeless powders in weapons up to and including 30 mm calibre
2.	Projectile velocity test	Smokeless powders in weapons up to and including 30 mm calibre
3.	Test of barrel pressure-time dependence	Smokeless powders in weapons up to and including 30 mm calibre
4.	Combined test of electronic pressure, velocity, and operating time measurement	Smokeless powders in weapons up to and including 30 mm calibre
7.	Determination of sensitivity to hammer impact	Explosives, explosive substances
8.	Determination of sensitivity to friction	Explosives, explosive substances
9.	Thermal stability test at 75 °C	Explosives, explosive objects
10.	Determination of mass explosion capability	Explosives, explosive objects
11.	Test of sensitivity to external fire	Explosives
12.	Determination of explosion temperature	Explosives
13.	Test of sensitivity to external heat stimuli - Koenen test	Explosives, explosive substances
14.	Test of sensitivity to 12 m fall	Explosives, explosive objects
15.	Test of untight packaging	Explosives, explosive objects
16.	Quantitative determination of centralite I, centralite II, acardite II by gas chromatography / mass spectrometry method	Smokeless powder
17.	Quantitative determination of nitroglycerine, diphenylamine, 2-nitrodiphenylamine by liquid chromatography method	Smokeless powder

Analytical laboratories provide also other non-accredited analysis and stability tests of smokeless powders and explosives.

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