

1. Product identification and producer

1.1. Product trade name: **Rescue ballistic parachute system GRS** (further GRS unit)

1.2. Producer identification: Galaxy High Technology s.r.o. Tř.1. máje 66/24a, Liberec 3,460 01,CZ

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Galaxy High Technology s.r.o.

IČO: 254 55 125

2. Product composition

Solid powder filling-smokeless powder **LOVEX D250**

Unit explosive mass: 0,325 kg

Composition:

Quality mark	Unit	Figures	No. of method according PND 39-821-97
Nitrocellulose, app.	%	56,7	-
Nitrogen in Nitrocellulose	%	informative	304.1
Nitroglycerin	%	27,5±1,6	302.1
Dinitrotoluene	%	8,5±1,0	302.1
Centralite I	%	2,9±0,3	302.1
Transformer oil	%	0,6±0,3	302.1
Lead Oxide	%	1,4±0,3	409.1
Calcium Carbonate	%	2,0±0,4	410.1
Zinc Stearate app.	%	0,02	411.1
Humidity, maximal.	%	0,8	201.1
Explosion heat	kJ.kg^{-1}	3630±70	701.2
Density min.	g.cm^{-3}	1,580	601.3
Dimensions (in normal temperature):			604.1
Outer diameter		40,0±0,3	or
Wall thickness	mm	16,0±0,2	604.2
Length		175 -2mm	
Element weight, min.	g	320±5	-
Chemical stability in 100°C,minimal	days	8	502.1

3. Data of product hazard.

This filling of smokeless powder LOVEX D 250 is placed in rocket engine, which is a part of the GRS system.

In case permanent temperature increase of 80°C for 12 hours occurs, it results in ignition of this powder.

3.1. The most relevant adverse impacts on human health during transport of GRS unit in case of fire:

- It can cause burns by flame blast.
- Breath of exhausts can occur when it fires. It is not toxic but choking.
- Burns can occur by flying burning parts of packaging material or by bump of whole unit.
- In case the whole load is engulfed by fire, blast of fire can occur gradually from all units. It can result in disarrangement of their original palette position.

4. First aid hints

In case of burns cool burnt cuticle preferably with cold water.

Find immediately medical help.

5. Fire - measures for fire fighting

Applicable fire extinguishers: dry powder and foam extinguishers of 2,5 kg volume , possibly use of water source.

Extinguish from distance of at least 6 m , always upright to longer side of package. Do not stand against the front side of package. Fight with fire by all possible means with objective to prevent spreading of fire.

In case of fire spreading make space at least 30 m. If it is possible, set away the vehicle to open space with aim to prevent exposure to danger of citizens. Warn them not to come closer than 50 meters.

6. Measures in case of unit packaging accidental damage

Accede to unit always in direction to longer side of package. Detect by opening whether the unit was not damaged. If it is deformed or creased, inform the producer.

7. Hints for handling and storing

- 7.1. Hints for handling: Use such manipulation means so that damage of package does not occur.
- 7.2. Hints for storing: Protect against rain, handle with box carefully as with fragile goods, pile it no more than in 4 pieces. Optimal storing temperature: +14 up to +24°C, and 35 - 75% of humidity.
- 7.3. Not to expose **permanent temperatures higher than 80°C for 12 hours**. If this time is exceeded, the unit must be turned back to the producer.
- 7.4. Additional specifications:
GRS unit transported in original package in packaging from three-layer cardboard, filled with polystyrene is resistant against spontaneous drop from 12 m and launching of GRS unit rocket in case of fire.
 - 1.4.1. Resistance against impact is ensured by:
 - Securing transporting screw between rocket engine and parachute container body.
 - Securing transporting steel needle put through and secured in launching wedge of the rocket engine.
 - Impact stopper between the rocket engine and the parachute container body.
 - Securing peg with little flag put through the launching handle, secured against extraction.
 - 1.4.2 Resistance against rocket firing:
 - Protecting steel basket with exhaust turner firmly connecting rocket engine with parachute container.
 - Impact stopper item 1.4.1. and securing transporting steel screw item 1.4.1

For GRS unit operational stage all securing means must be removed.

8. GRS unit check and protection of persons

Personal protective equipment is not ruled.

Protect the unit against fire: not to expose close to heating objects, spark ejection, open fire, restrict smoking in vicinity to stored units.

Do not store units in damp environment and on rain.

9. Physical and chemical attributes.

Product form: container with rescue parachute, connected rocket drawing engine with explosive.

Attributes see item 2.

GRS unit operational temperature:	-30°C +60°C
Ignition point:	85°C
Flammability:	flammable
Self flammability:	none
Explosive limits:	85°C - blast of fire from engine jet
-upper limit	
-lower limit	none

10. Stability and reactivity

Conditions under which the product is stable: under normal conditions the product is stable
-30°C +60°C , humidity 35 - 73%

11. Toxicological information

The product is not toxic

12. Ecological information

Transport package and product do not affect ecology.

13. Dispose information

Product is supposed for 5-year operational cycle to serve after activation for aircraft rescue with its crew.

In case of accident of transport vehicle it is necessary to consider physically extent of GRS unit package damage.

- 12.1. Package is not damaged: It is possible to transport the unit further as undamaged.
- 12.2. Package is damaged: it is necessary to open the package and go on as in the item 6. It is forbidden to dismount the protecting transport steel basket and extract the securing transport means against unit activation. Dismounting of unit can be done by authorised person or pyrotechnic only.

14. Transport information

Road and train transport

Class: 1
UN: 0453 Rockets, line throwing
Classification code: 1.4G
The highest amount per one transport unit of explosives must not exceed 333kg.
Package designation: u/n 4 G / Y 20/ S / 03
CZ/ GALAXY-IMET 0008

In case the highest total amount per one transport unit does not exceed in GRS transportation classified by the code GRS-,UN 0453,Rockets, line throwing, 1.4G“ classified for transport category 2 according to ADR ,and

net weight of explosives is not higher than 333 kg according to the chart 1.1.3.6.3, the GRS system can be transported in units on one transportation unit according to enactment prescribed in 1.1.3.6 ADR.

14.1 The number of completed transported systems was determined 100 units per one transportation unit in respect to the net weight of explosive, which does not exceed 0,325 kg in transport packing per each transport unit.

14.2 For exemption from validity according to 1.1.3.6. must be stated in the bill of freight:

“Freight not exceeding limits for exemption as prescribed in 1.1.3.6.

14.3 . Each GRS unit is set in separate certified packing: u/n 4G / Y20 / S/ 03,
CZ Galaxy -Imet 0008

14.4 It is equipped with protection steel basket and the launching peg is secured by steel wire of 2mm diameter.

14.5 Packing is further labeled on side face and top cover:

- a) Label: 1,4 G -EXPLOSIVE
- b) Lettering: NET WEIGHT: 0,325 kg
- c) Lettering: GROSS WEIGHT: 15,5 kg
- d) Lettering: u/a4G/Y20/S/03,CZ/GALAXY - IMET 0008
- e) Lettering: UN No.0453 ROCKETS,LINE THROWING

If possible group it together in on top cover and side face, left hand part of the box.

f) Labels: umbrella, fragile; arrows up from both side faces.

g) On packaging must be further address of sender and recipient including his emergency contact – name and telephone number. Safety list must be included (in foreign state languages of transport route, including the state of destination).

For air transport it is necessary to include labels “Cargo Aircraft Only”. To invoice and JCD (Customs Declaration) must be attached filled-in form “Shippers Declaration of Dangerous Goods (3 times signed and stamped original).To USA must be stated on packaging the EX number code.

14.7. Then vehicle intended for transportation can be without special alterations and does not have to comply with the ADR norm (as for example Ducatto , Ford Transit, Pick-up or cars with trailer. In this case it must be equipped with a tarpaulin. It is forbidden to transport the freight uncovered.

14.8. Fire regulations for transportation:

The vehicle must be equipped with one hand-held extinguisher containing at least 2.5 kg of dry powder, or similar foam extinguisher. It must be in the reach of driver. When the trailer is used, it must be equipped by at least one extinguisher as well. For extinguishing of the engine and freight space complies the powder extinguisher PG- 6.

14.9. Transport by own car: All items apply, except exemption in item 2: does not have to be labeled. Transport and destroying of expired units (units sent back for re-packing):

Units sent for revision will be taken over and transported to a.s.Synthesia (the producer) by the same above mentioned conditions.

15.law regulations information

In accordance with the Act no.11/1994 Sb. of road transport , the ordinance 187/1994 Sb. issued by the Department of Transport by which the act of road transport is executed, accredited persons are liable to respect issued regulation in extent of adjudication no.NZ-0045/98 of The Czech Shipping and Industry register about classification of dangerous goods class 1 –explosives in sense (IMDG CODE) dated 7.7.1998 in Prague and its new amendment of 5.1.2004. The transport box bears the designation: u/n4G/Y20/S/03,CZ/Galaxy – Imet 0008.

16. Additional information

Above mentioned classification applies as well for transport of explosives according to AID,ADR,ADN and IATA-DGR. RID-ADR: "0453 Rockets,line throwing, 1.4 G, figure 43"