DRUTEP
TEPLICE

SAFETY DATA SHEET

TECHNICAL IGNITER FOR RAIL WELDING
WITH EASY-IGNITABLE ENDING

(not subject to Act No. 356/2003 Coll., on chemical substances and preparations)

Date of issue: March 3, 2008.

1.1. PRODUCT IDENTIFICATION

Classification for transport (according to IMDG Code, ADR, RID and ADN):
Subject: **Rail welding igniter**
UN No. and naming: **UN 0431 ARTICLES, PYROTECHNIC for technical purposes**
Classification code: **1.4 G**
Decision of the Czech Naval and Industrial Register No. NZ-0430-05)

1.2. PRODUCT USE

Technical igniter is designed for ignition of termite composition in a special welding set for maintenance of rail, and as glow igniter.

1.3. MANUFACTURER IDENTIFICATION

DRUTEP, druzstvo Teplice, Skolní 22, Teplice, Postcode 415 83, Czech Republic
Phone: +420 417 534 007; Fax: +420 417 534 009.
dusovska@drutep.cz, www.drutep.cz

1.4. EMERGENCY PHONE NUMBERS:
Toxicological Information Centre, address:
Na Bojisti 1, Praha 2, Postcode 128 00, Czech Republic:
+420 224 919 293, +420 224 915 402, +420 224 914 575.

2. HAZARDOUSNESS IDENTIFICATION

2.1. PHYSICAL RISKS

Product is qualified as Class I hazardous article with classification code 1.4G, pyrotechnical article of T_0 sub-class.

Explosion:

In ordinary conditions of use, the product does not represent any serious danger. It is designed so that the level of its hazardousness was low, so that in case of firing or ignition no big fragments were shot out, and that these were in any case limited to such extent that would not interfere in any manner whatsoever during fire fighting and application of emergency provisions. Effects are mostly reduced to a piece without scattering of fragments of bigger dimensions or any major jeopardy to environment.

Fire:

Fire hazard, caused by flame or hot spots of temperature > 300°C, by stroke or friction. Any flammable sources and any manipulation with open fire need to be eliminated.

2.2. ADDITIONAL RISKS

Harmful if swallowed.

3. INFORMATION ON COMPONENTS

Technical igniter contains pyrotechnic composition applied on wire, the end of which is provided with an easily-ignitable head.

The pyrotechnic composition contains < 70% of barium nitrate, < 20% of metal powder and bonding agent. According to Act No. 356/2003 Coll., as amended, barium nitrate is classified as harmful to human health (if inhaled and ingested).

Barium nitrate = $Ba(NO_3)_2$, CAS No.10022-31-8, ES (EINECS):233-020-5, Xn, R: 8-20/22

Aluminium Powder Pyro, CAS: 7429-90-5, ES (EINECS):231-072-3, F, R: 10-15.

4. FIRST AID MEASURES

4.1 GENERAL INFORMATION

In case of unauthorized handling (not following the Instructions for Use), Risk of injury resulting from the stated risks – burning!

Seek physician's help immediately.

4.2 IN CASE OF HALATION:

Remove to fresh air. Get medical attention if ill effects persist.

4.3 IN CASE OF SKIN CONTACT:

In case of repeated or long-term skin contact might induce irritation – rinse with water.

4.4 IN CASE OF EYE CONTACT:

Get medical attention immediately.

4.5 IN CASE OF INGESTION:

Harmful for human health if swallowed! Serve big amount of water, induce vomiting, then administer sodium sulphate (1 tablet/0.25 l of water). Get medical attention.

5. FIRE-FIGHTING MEASURES

5.1 SUITABLE EXTINGUISHERS: water, foam, powder

- and any means available – water, sand, soil – depending on the extent of fire.

5.3 SPECIAL DANGER – during burning releases toxic products NO_x

5.4 PROTECTIVE AIDS FOR FIRE-FIGHTERS: breathing apparatus and complete protective outfit.

6. MEASURES IN CASE OF ACCDIENTAL LEAK

6.2 Safety provisions for environment protection

Prevent from leak into sewerage; in case of leak competent authorities need to be informed.

7. HANDLING & STORAGE INSTRUCTIONS

7.1 HANDLING:

Only person over 18 years of age is authorised to handle technical igniters, whilst being extremely careful and in well ventilated areas, out of the reach of flammable materials, and only in accordance with relevant technical instructions.
Any other use than ignition of termite composition in special welding set during rail welding is prohibited.

7.2 STORAGE

Technical igniters must be stored in the original containers from the manufacturer, separately from flammable and easily ignitable materials. They need to be stored in dry places and in such manner so that their temperature does not exceed 40°C (i.e. protect carefully against sparks, open fire, warmth and also dampness).
Storage has to be locked (access in permitted to authorised persons only), and equipped with adequate fire-stopping materials. Ban on smoking and open fire handling must be placed visibly in the storage. Technical igniters must be stored in such manner that human lives or health were not jeopardised in case of potential explosion or fire.

8. EXPOSURE LIMIATION

Air passage protection – not required.
Hand protection - suitable handling gloves.
Eye protection – goggles.
Skin protection – protective working clothes.
Work hygiene – eating, drinking and smoking during work are not allowed. After work, wash your hands.

9. PHYSICAL & CHEMICAL PROPERTIES

Physical state: solid (as a ”rocket”), pyrotechnic composition with easily ignitable head, applied on wire
Colour: grey
pH of solution: 7.6
Odour: odourless
Ignition point: > 300°C
Igniters create temperature > 1300°C

10. STABILITY & REACTIVITY

10.1 Conditions that need to be avoided: high temperatures, sparks, fire, impacts, strokes, friction.
Might explode in composition with materials that support burning.
Sensitivity to hammer stroke:
For activation of lighting head (explosive decomposition or fulmination), energy of 10 J is required in test conditions.

For activation of igniter body (explosive decomposition or fulmination), energy of 20 J is required in test conditions.

Sensitivity to friction:

Load of 80 N is needed to activate the lighting head in test conditions.

Load of 240 N is needed to activate the igniter body in test conditions.

Sensitivity to outer fire effect:

No explosion occurred in test conditions, only ignition and fast burn-out.

10.2 Thermal stability < 40°C

In thermal stability determination no ignition occurred in test conditions, no decomposition signs occurred, no self-warmup was reported at the temperature to 75°C.

10.3 Chemical stability – stable under normal conditions.

10.4 Other conditions that need to be avoided: humidity

10.5 Additional information: pyrotechnic article, article of Class I hazardousness, classification code 1.4G.

Hazardous substance classified as explosive, classified upon the ADR convention to sub-class 1.4, shows only low level of explosion hazard. Effects are mostly limited to a piece without scattering of fragments of bigger dimensions or any major jeopardy to environment. Fire, acting externally, must not induce practically simultaneous explosion of the almost entire content of the piece.

11. TOXICOLOGICAL INFORMATION

11.1 ACUTE TOXICITY: The product is harmful to human health in case of ingestion;

- LD_{50}, orally, sewer-rat ($mg.kg^{-1}$): 355 (barium nitrate - content 50%)

11.2 ADDITIONAL EFFECTS: eye-irritating, irritates mucous membranes and upper air passages.

12. INFORMATION ON ECOLOGY

Leak to environment is not considered for pyrotechnic products intended for technical purposes, with regard to the way of their application.

Contains 50% barium nitrate

Ecotoxicity of barium nitrate

LC_{50}, 96 hours, fish ($mg.1^{-1}$): salmon 158 mg/l (like BaC12)

L.idus 870 mg/l (like BaC12)

Shellfish: 29 mg/l (barium nitrate)

Algae: 24 mg/Sc. quadricauda (Ba salts).

13. DISPOSAL RELATED INFORMATION

Removal of an igniter residue in common usage does not represent any danger.

After burn-out, cool the hot wire down and dispose in usual manner – municipal waste.

14. TRANSPORT RELATED INFORMATION

Transport classification for ADR, RID, ADN and IATA-DGR.

UN No.: 0431

Hazardousness class: I
Transported material: UN 0431 ARTICLES, PYROTECHNIC, for technical purposes.
Classification code: 1.4G
Pyrotechnic articles can be only transported in prescribed, closed and undamaged containers. The containers must be secured on vehicle to avoid their free movement, driving at each other or falling down. During the time of loading, unloading and transport of pyrotechnic articles, smoking and open-fire handling are forbidden.

15. REGULATIONS RELATED INFORMATION

Health-protection, safety and environment- related information stated on the product label:
STORAGE CONDITIONS:
Igniters are only stored in their original containers, separately from flammable and easily ignitable materials, in dry places and in such manner that their temperature does not exceed 40°C. Smoking and open fire handling are not allowed in the storage areas. The storage must be equipped with fore-stopping materials. Pyrotechnic articles must be stored not to jeopardise human lives or health in case of potential explosion or fire.
INSTRUCTIONS FOR USE:
The igniter serves for ignition of termite composition – by fixing the igniter into the dose, exclusively in a special welding kit during maintenance of rails.
SAFETY INFORMATION:
During its burning, igniter generates temperature of 1300 to 1450°C, therefore must not be used for any other purposes than those that are stated above, and only by a worker familiarised with the function of the welding kit whilst following the prescribed procedures.
The igniter contains substances harmful to human health (barium nitrate - harmful to human health if inhaled or swallowed). In case of ingestion, serve plenty of water, induce vomiting, then administer sodium sulphate and get medical attention immediately. Avoid leak to environment.

16. ADDITIONAL INFORMATION

The Act No. 356/2003 Coll. on chemical substances and preparations does not apply to technical igniters (see Section 1 par. 4 of the quoted Act).
Explosion hazard in case of stroke, friction, fire or acting of other ignition sources.
Harmful to human health in case of inhalation and ingestion.
Training instructions: Get workers familiar with the recommended way of use, compulsory protection equipment, first-aid measures and also with prohibited pyrotechnic article handling. In usage, the procedures related to pyrotechnic devices need to be adhered to.
The stated data reflect our current knowledge however do not represent the guarantee of the product properties, therefore no contract relations arise.