U.S. Department
of Transportation

400 Seventh Street, S.W.
Washington, D.C. 20590

**Research and
Special Programs
Administration**

**The US Department of Transportation
Competent Authority for the United States**

CLASSIFICATION OF EXPLOSIVES

Based upon a request by DYNAenergetics GmbH & Company KG, KaiserstraBe 1, D-53839 Troisdorf, GERMANY, the following items are classed in accordance with Section 173.56, Title 49, Code of Federal Regulations (49 CFR). A copy of your application, all supporting documentation and a copy of this approval must be retained and made available to DOT upon request.

U.N. PROPER SHIPPING NAME AND NUMBER:
Articles, explosive, n.o.s., UN0349

U.N. CLASSIFICATION CODE: 1.4S

REFERENCE NUMBER	**PRODUCT DESIGNATION/PART NUMBER**
EX1998050151A	Octoslim PT 185 (in revised packagings for Division 1.4S)

NOTES:
The explosive core loading of this article shall not exceed 14 grams per meter. The following packaging method is assigned: Inner Packaging - Panels, cardboard or chipboard, not less than 6 mm in thickness with detonating cord wound in a flat single layer spiral and the outer end of the cord laid atop a cardboard strip not less than 0.8 mm in thickness, laid across the middle of the spiral array. The spiral rings of detonating cord shall be separated by fiberglass tubing or cardboard strip; or a spacing ridge or well in the mounting board construction by a distance large enough to prevent initiation of the adjacent cords. Each mounting board shall not contain more than 31 meters (102 feet) of detonating cord and shall be overpacked with a plastic bag which is sealed and evacuated. Outer Packaging - UN 4G fiberboard box, each containing a total of not more than 155 meters (510 feet) of detonating cord.

U.N. PROPER SHIPPING NAME AND NUMBER:
Articles, explosive, n.o.s., UN0349

U.N. CLASSIFICATION CODE: 1.4S

REFERENCE NUMBER	PRODUCT DESIGNATION/PART NUMBER
EX1997020006A	HNS Cord PT 250 (in revised packaging for Division 1.4S)
EX2004020242	HNS Slim PT 250 (in revised packagings for Division 1.4S)

NOTES:
The explosive core loading of this article shall not exceed 18 grams per meter. The following packaging method is assigned: Inner Packaging - Panels, cardboard or chipboard, not less than 6 mm in thickness with detonating cord wound in a flat single layer spiral and the outer end of the cord shall be securely held in place across the middle of the spiral array. Each mounting board shall not contain more than 31 meters (102 feet) of detonating cord and shall be overpacked with a plastic bag which is sealed and evacuated. Outer Packaging - UN 4G fiberboard box, each containing a total of not more than 155 meters (510 feet) of detonating cord.

DATED: June 23, 2004

Approved by:

Robert A. McGuire
Associate Administrator for
Hazardous Materials Safety

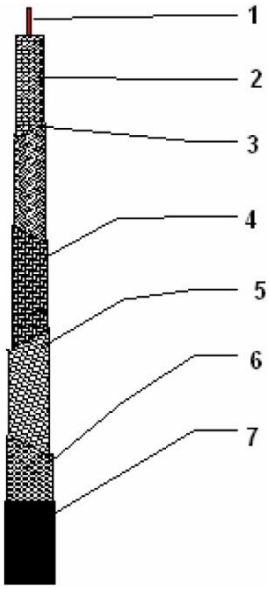
Detonating Cord
PT 250 HNS 1.4S XR

Application

Temperature and pressure resistant detonating cord for oilfield use.
Not recommended for use with exposed gun systems.

Specifications

	Metric	Imperial
Explosive Core	HNS 16 - 18 g/m	75 - 84 grains / ft
Tensile Strength	1000 N	220 pounds
Detonation Velocity	6,400 ± 200 m/s	21,000 ± 656 ft/s
Outside Diameter	5.25 ± 0.25 mm	0.207 ± 0.01 inches
Lap Joint Sensitivity	No	
Cord X-Rayed	Yes	
Maximum Shrinkage	2%	
Cord Colour	Black	



All Dimensions in mm

1. Identification Thread
2. Explosive
3. Plastic Foil Strip
4. First Covering with Thread
5. Second Covering with Thread
6. Third Covering with Thread
7. Pressure & Heat-Resistant Sheath

Shelf Life

5 years at storage condition: -40°C to +60°C, -40°F to +140°F; maximum 65 % relative humidity, good ventilation.

Disposal

Detonating cords should be destroyed only by authorised persons and in accordance with all applicable laws, regulations and company procedures.

Part Number	Classification	CE Number	UN Number	D.O.T.
2315353	1.4S X-Rayed	0080.EXP.97.0022	0349	EX1997020006A

Temperature Resistance

Time	Temperature in °C	Temperature in °F
200 Hours	230 °C	446 °F
1 Hour	250 °C	482 °F
Function Tested in Laboratory		
1 Hour	255 °C	491 °F

Temperature and Pressure Resistance

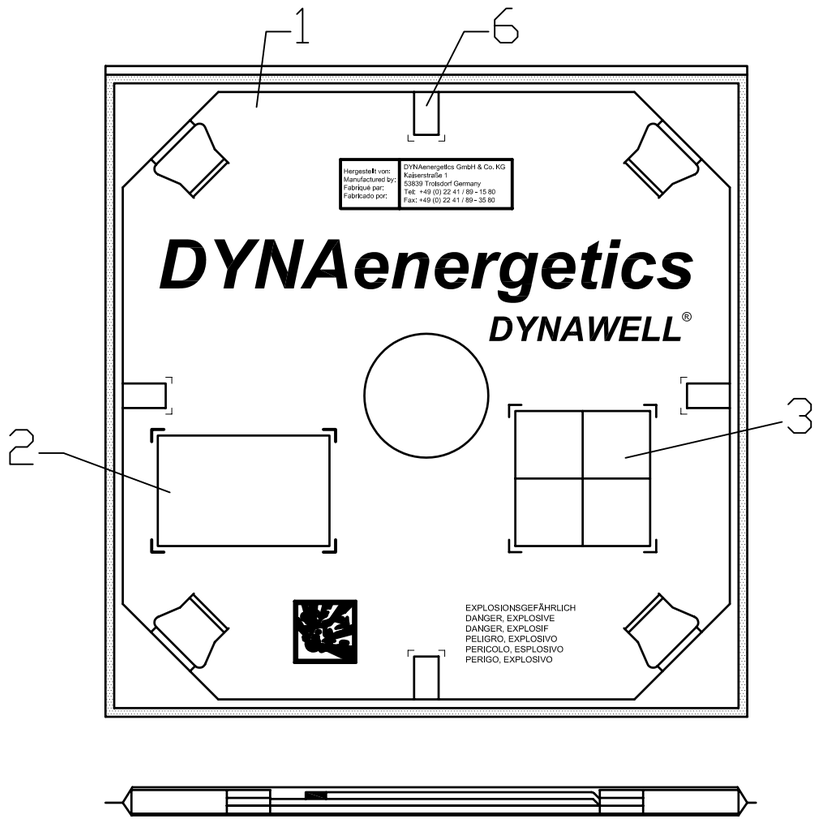
Time	Temperature in °C	Temperature in °F
1 Hour	200 °C / 1,400 bar	392 °F / 20,300 psi
Function Tested in Laboratory		
1 Hour	210 °C / 1,500 bar	410 °F / 21,800 psi
1 Hour	230 °C / 830 bar	450 °F / 12,000 psi

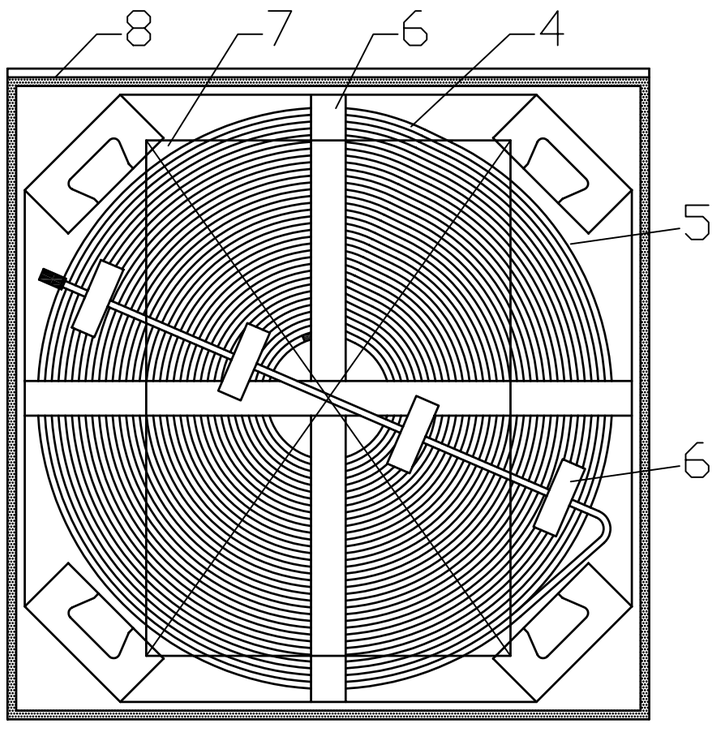
Note: **Not recommended for use below 0°C / 32°F**

Packing Information

Quantity per box	152.4m (500ft) 6 pcs of 25.4m
Gross weight per box	10.8 kg
Net weight per box	4.8 kg
NEC per box	2.7 kg
Dimensions of box	51.4cm x 51.4cm x 22cm
Product Weight / m	31.6 g
Package Type	Carton + Vacuum Bag

+/- 5 % tolerance in weights





Variante *variant*	Pos. 1 Benennung *title*	Pos. 1 Sachnummer / Norm-Kurzbezeichnung *component-no. / code designation*	Pos. 4 Menge / Einheit *quantity / unit*	Pos. 8 Sachnummer / Norm-Kurzbezeichnung *component-no. / code designation*	Pos. 8 Außenmaß *outside dimension*	Pos. 8 Innenmaß *internal dimension*
50ft	Stanzzuschnitt 495x495 *cut-out 495x495*	S-V-2-3.1 Material-Nr. -	50 ft	Material-Nr.: -	550x600	530x560
100ft	Stanzzuschnitt 495x495 *cut-out 495x495*	S-V-2-3.1 Material-Nr. -	100 ft	Material-Nr.: -	550x600	530x560
200ft	Stanzzuschnitt 695x695 *cut-out 695x695*	S-V-2-3.2 Material-Nr. -	200 ft	Material-Nr.: -		
25m	Stanzzuschnitt 495x495 *cut-out 495x495*	S-V-2-3.1 Material-Nr. -	25 m	Material-Nr.: -	550x600	530x560

Diese Zeichnung (Blatt-Nr. 3) gilt nur für die folgenden Sprengschnüre:
This drawing (sheet No. 3) only applies to the following detonating cords:

- HNS Cord PT 250
- HNS Slim PT 250
- Octoslim 40 PT 185

Pos. item	Menge qty.	Einheit unit	Benennung title	Sachnummer / Norm-Kurzbezeichnung component-no. / code designation	Bemerkung remark
8	1	St.	Vakuumbeutel *vacuum bag*	siehe Tabelle *see table*	
7	1	St.	Röntgenbild *X-ray radiograph*		
6	NB	m	Klebestreifen *adhesive strip*	Material-Nr.	Alternativ: Doppelseitiges Klebeband *Alternative: Double-faced adhesive tape*
5	2	St.	Endkappe *end cap*	Material-Nr.	
4	s.Tabelle *s.table*	s.Tabelle *s.table*	Sprengschnur *detonating cord*		
3	4	St.	Abzieh-Etikett *decal label*		
2	1	St.	Etikett *label*		
1	1	St.	Stanzzuschnitt XXX siehe Tabelle *cut-out XXX see table*	siehe Tabelle *see table*	

ZUST. *ISSUE*	ÄNDERUNG *MODIFICATION*	Tag *DATE*	NAME *NAME*
B	AEA S-V-2 # 3 (Pos. 6 alternatives Klebeband)	2005-04-14	Gantenb.
A	AEA S-V-2 # 2 (Octoslim 40 PT 185 hinzu)	2005-04-14	Gantenb.

ZEICHNUNGS-NR. / *DRAWING NO.*
S-V-2-2.2 Bl. 3

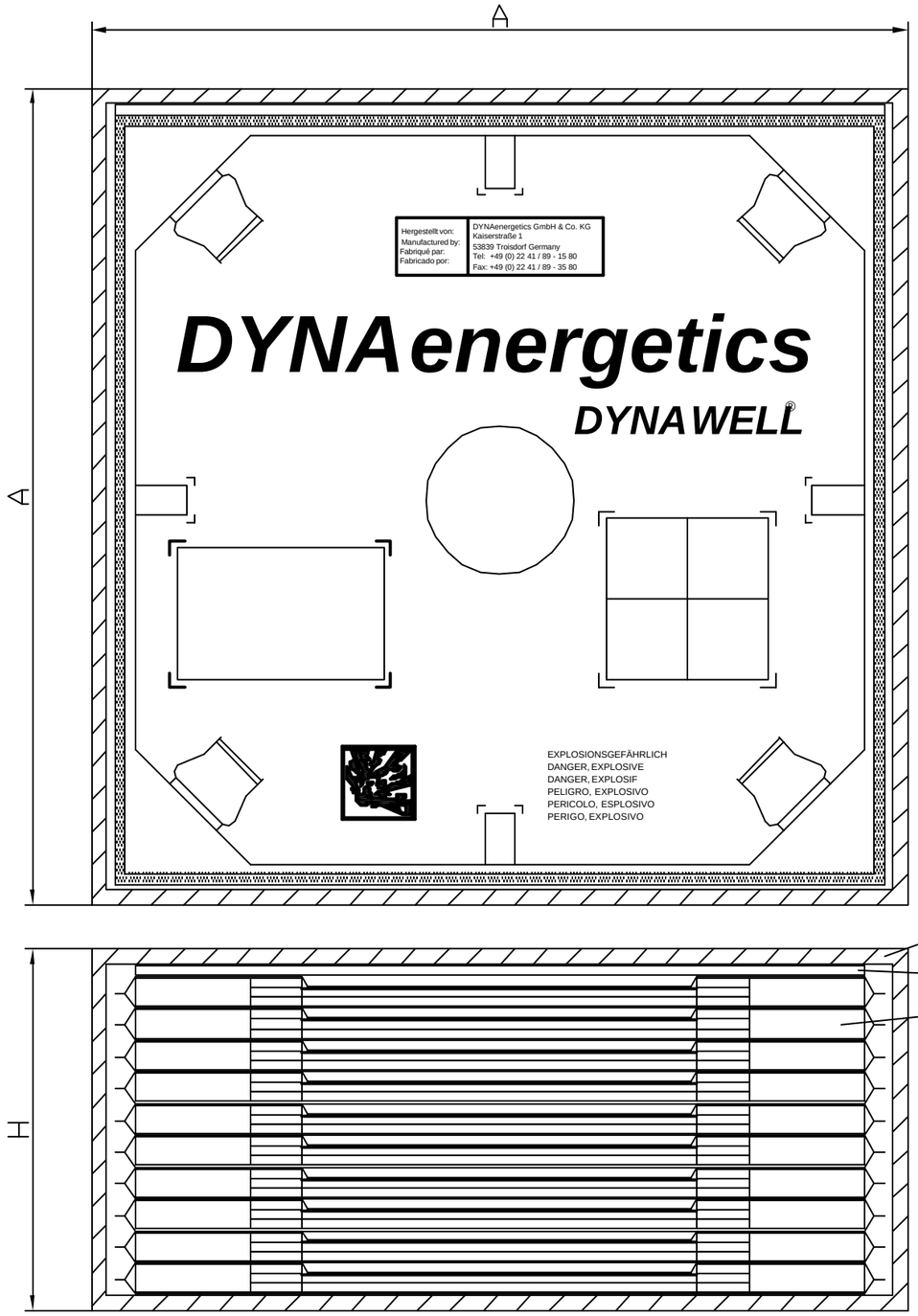
BENENNUNG / *TITLE*
Innenverpackung 1.4S für Sprengschnur, flach
Inner Package 1.4S for Detonating Cord, flat

MASS-STAB *SCALE* 1:5

	TAG *DATE*	NAME *NAME*
GEZ. *DRAWN*	2003-12-16	Gantenbrink
GEPR. *CHECKED*	.	.
NORM *STD*	.	.
	.	.

DYNAenergetics GmbH & Co. KG
DYNAWELL®

BLATT-NR. *SHEET NO.* 3/3



Variante *variant*	Außenmaße *outside dimensions*		Pos. 1	Pos. 2		Pos. 3
	A	H	Sachnummer / Norm-Kurzbezeichnung *component-no. / code designation*	Menge *quantity*	Sachnummer / Norm-Kurzbezeichnung *component-no. / code designation*	Sachnummer / Norm-Kurzbezeichnung *component-no. / code designation*
1.1D 10 x 100ft	514	218	S-V-2-1.1 Material-Nr. -	10	SV-2-2.1 Material-Nr. -	495 x 495 x 6 Material-Nr. -
1.1D 10 x 25m	514	218	S-V-2-1.1 Material-Nr. -	10	SV-2-2.1 Material-Nr. -	495 x 495 x 6 Material-Nr. -
1.4S 10 x 50ft	514	218	S-V-2-1.1 Material-Nr. -	10	SV-2-2.2 Material-Nr. -	495 x 495 x 6 Material-Nr. -
1.1D 20 x 50ft	514	398	S-V-2-1.2 Material-Nr. -	20	SV-2-2.1 Material-Nr. -	495 x 495 x 6 Material-Nr. -
1.1D 5 X 200ft	714	128	S-V-2-1.3 Material-Nr. -	5	SV-2-2.1 Material-Nr. -	695 x 695 x 6 Material-Nr. -
1.4S 5 X 100ft	714	128	S-V-2-1.3 Material-Nr. -	5	SV-2-2.2 Material-Nr. -	695 x 695 x 6 Material-Nr. -
1.4S 5 x 25m	714	128	S-V-2-1.3 Material-Nr. -	5	SV-2-2.2 Material-Nr. -	695 x 695 x 6 Material-Nr. -

Pos. *item*	Menge *qty.*	Einheit *unit*	Benennung *title*	Sachnummer / Norm-Kurzbezeichnung *component-no. / code designation*	Bemerkung *remark*
4	1	St.	Etikett *label*		
3	1	St.	Einlage XXX *insert XXX* siehe Tabelle *see table*	siehe Tabelle *see table*	Zweiwellige Wellpappe (RAL 2.40, CB-Welle) *dubble wall corrugated cardboard (RAL 2.40, CB-corrugation)*
2	s.Tabelle *s.table*	St.	Innenverpackung XXX *inner package XXX* siehe Tabelle *see table*	siehe Tabelle *see table*	
1	1	St.	Faltkiste XXX *folding box XXX* siehe Tabelle *see table*	siehe Tabelle *see table*	

ZUST. *ISSUE*	M	AENDERUNG *MODIFICATION*	Tag *DATE*	NAME *NAME*
.	.	.	.	.
.	.	.	.	.
.	.	.	.	.
.	.	.	.	.
.	.	.	.	.
.	.	.	.	.
.	.	.	.	.
.	.	.	.	.
.	.	.	.	.
.	.	.	.	.
.	.	.	.	.

ZEICHNUNGS-NR./ *DRAWING NO.*
S-V-2-1

IDX

BENENNUNG / *TITLE*
Außenverpackung
Outer Package

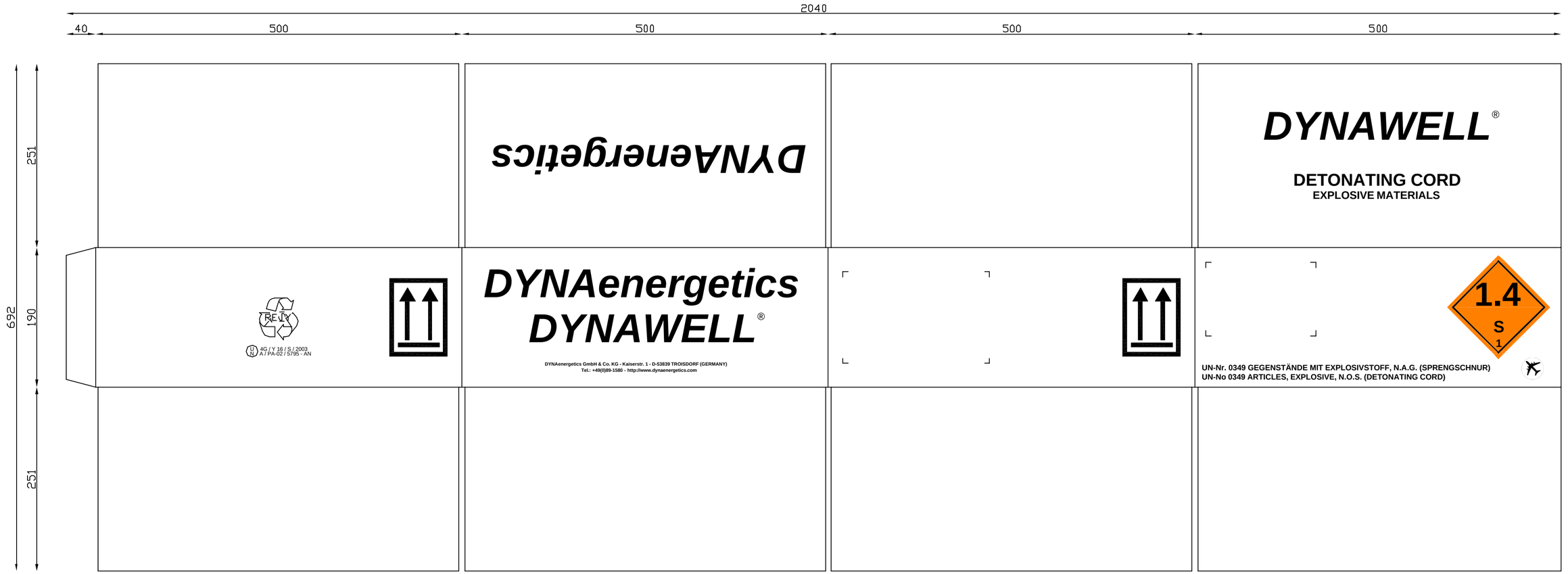
MASS-STAB *SCALE* 1:4

	TAG *DATE*	NAME *NAME*
GEZ. *DRAWN*	2003-10-15	Gantenbrink
GEPR. *CHECK*	.	.
NORM *STD*	.	.
	.	.

DYNAenergetics GmbH & Co. KG
DYNAWELL®

BLATT-NR. *SHEET NO.* 1/1

Ersatz für S-V-1-2 _(2)



Ersatz für S-V-1-1_(1)

Achtung: Die Richtungspfeile sind nicht erforderlich und können bei zukünftigen Bestellungen weggelassen werden.

UN Nr. jährlich anpassen (Herstellungsjahr 2003, 2004, etc.)
UN No. to be changed annually (year of manufacture 2003, 2004, etc.)

Alle Maße sind Innenmaße; Außenmaße: 514 x 514 x 218
All dimensions are inner dimensions; External dimensions: 514 x 514 x 218

Farben: Schwarz 79.106, Orange 41.129
colors: black 79.106, orange 41.129

Siehe auch Prüfbericht Nr. 6718/5795/03, Duropack
See also inspection report No. 6718/579/03, Duropack

ZUST. / ISSUE	M	ÄENDERUNG / MODIFICATION	Tag / DATE	NAME / NAME

Wellpappensorte: ANSCOR 34940, nassfest verklebt
Wellenart: CB, nach DIN 55468 Teil 1
Sort of corrugated cardboard: ANSCOR 34940, glued wet-strong
Form of corrugation: CB, according to DIN 55468 Part 1

ZEICHNUNGS-NR. / DRAWING NO.: S-V-2-1.1

BENENNUNG / TITLE: Faltkiste 514x514x218
folding box 514x514x218

MASS-STAB / SCALE: 1:4

	TAG / DATE	NAME / NAME
GEZ. / DRAWN	2003-10-13	Gantenbrink
GEPR. / CHECKED		
NORM. / STD.		

DYNAenergetics GMBH & Co. KG
DYNAWELL®

BLATT-NR. / SHEET NO.: 1/1

Duropack

Robert-Bosch-Straße 3
D-91522 ansbach
Fon (0981) 188-0
Fax (0981) 188110
e-mail: infothek@duropack.de
Internet: http://duropack.de
Date: 07.10.03
Our reference: TS

Duropack Wellpappe Ansbach GmbH – Postfach 1753 – D-91508 Ansbach

Dynaenergetics GmbH 6 Co.KG
Herrn Malte Veemeyer
Kaiserstr. 1

D- 53839 Troisdorf

UN-packaging model testing
Test number: 6718/5795/03
Dimension: 500 x 500 x 190 mm
Content: detonating cord

Dear Dr. Veehmeyer,

We performed the model testing with the above-mentioned packaging.
The result is positive.
The packaging is registered for package group II and for a max. gross weight of 16.0 kg.

Conferring of admission is given so that the packaging can bear the following UN code with immediate effect:

UN 4G / Y 16 / S / production year

A / PA-02 /5795 – AN

Please note that the cover and bottom flap of the folding box has to be closed following the admission:

Focal plane shutter with 50 mm wide plastic adhesive tape.
(see sealing drawing)

Note the following according to the **technical guidelines for packaging (TRV) 005 "compound packaging":**

"When using the approved packaging as a compound packaging - even if used with other than in this licence described inner packages – it has to be veritably insured that the compound packaging is as effective as the licensed packaging model".

The described tests in this paragraph were performed in accordance with the corresponding regulations according to ADR 2001, paragraph 6.1.5. The test report can become invalid if used with other packaging or other packaging components.

If necessary we will provide a review for you.

For the performed tests, we have charged 800.- Euro.

Best regards
Duropack corrugated board Ansbach GmbH

Thomas Stephan

Annex: Test report Nr. 6718/5795703
Receipt affirmation of test report

CE

EXPLOSIFS ORGANISME NOTIFIÉ INERIS NOTIFIED BODY EXPLOSIVES

INERIS

NATIONAL INSTITUTE FOR INDUSTRIAL ENVIRONMENT AND RISK
- decree nr 90-1089, 7 December 1990 -
- order from the Minister of Industry, 20 December 1996 -

EXPLOSIVES FOR CIVIL USES

1 - ADDITION C1 TO THE EC TYPE-EXAMINATION CERTIFICATE

2 - **0080.EXP.97.0022**

3 - This certificate is relating to the following product:

Detonating cord HNS CORD PT 250

4 - This product is manufactured by:

DYNAenergetics GmbH & Co. KG
Kaiserstr. 1
53839 TROISDORF (GERMANY)

The applicant for the examination is:

DYNAenergetics GmbH & Co. KG
Kaiserstr. 1
53839 TROISDORF (GERMANY)

5 - The above named product is specified in the enclosed appendix.

6 - The National Institute for Industrial Environment and Risk (INERIS), notified with the identification number 0080 in accordance with the article 6.2 of the Council Directive 93/15/EEC, 5 April 1993, testifies that:

The above named product model is recognized to conform to Essential Safety Requirements as defined in annex I of that Directive.

7 - In addition to the EC type-examination (module B) defined in annex II of the Directive, the applicant has retained the assessment of the production quality assurance (module D) defined in the same annex. In compliance with para 3.3 of module D, the decision for the assessment has been notified to the manufacturer.

8 - **This addition is to be attached to the certificate 0080.EXP.97.0022, dated April 7, 1997.**

INERIS
Parc Technologique ALATA - B.P. N° 2
F-60550 Verneuil-en-Halatte
Tél. +33 (0)3 44 55 66 77 - Fax + 33 (0)3 44 55 66 99
SIRET 381 984 921 00019 - APE 743 B
Institut national de l'environnement industriel et des risques

Verneuil-en-Halatte, September 22, 2005

The Chief Executive Officer of INERIS
By delegation, the Director of Government Laboratories

C. MICHOT

Parc Technologique Alata BP 2 F-60550 Verneuil-en-Halatte
tél +33(0)3 44 55 66 77 fax +33(0)3 44 55 66 99 internet www.ineris.fr
Institut national de l'environnement industriel et des risques
Etablissement public à caractère industriel et commercial - RCS Senlis B 381 984 921- Siret 381 984 921 00019 - APE 743B

CE

EXPLOSIFS ORGANISME NOTIFIÉ INERIS NOTIFIED BODY EXPLOSIVES

INERIS

NATIONAL INSTITUTE FOR INDUSTRIAL ENVIRONMENT AND RISK
- decree nr 90-1089, 7 December 1990 -
- order from the Minister of Industry, 20 December 1996 -

Appendix to the addition C1 to the EC type-examination certificate nr 0080.EXP.97.0022

A1 - PRODUCT NAME : Detonating cord named HNS CORD PT 250

A2 - PRODUCT DESCRIPTION:

general identification:

- family	:	detonating cord
- sub-family	:	detonating cord, flexible
- explosive core	:	HNS
- explosive mass	:	16-18 g/m
- outer diameter	:	5.25 ± 0.25 mm
- sheath color/nature	:	black/FEP (polytetrafluoroethylene)
- identification/transport threads	:	1 red thread/1 white thread
- manufacturer's reference	:	HNS CORD PT 250

characteristics:

- detonation velocity	:	6000 m/s minimum

general conditions:

- shelf life	:	to be specified by the manufacturer
- limit temperatures		
. for use	:	to be specified by the manufacturer
. for storage	:	to be specified by the manufacturer
- abrasion resistance	:	satisfactory, to be adapted to the use
- tensile strength	:	900 N minimum

INERIS
Parc Technologique ALATA - B.P. N° 2
F-60550 Verneuil-en-Halatte
Tél. +33 (0)3 44 55 66 77 - Fax + 33 (0)3 44 55 66 99
SIRET 381 984 921 00019 - APE 743 B
Institut national de l'environnement industriel et des risques

A3 - DOCUMENTATION:

		reference	date	origin
- examination report	:	EXI-DP/ST - 1997 - 36 AK 34 - Ag CE 9/1 - R 960259A	24/02/97	INERIS
		EXI-DP/ST - 1997 - 32 AP B1 - Ag CE 9/1 bis	07/04/97	INERIS

A4 - PARTICULAR CONDITIONS FOR USE:

as specified by the manufacturer for use in oil well industry

A5 - MARKING:

- CE and symbol of Notified Body	:	in conformity with para 1 of module D in annex II of the Directive
- others	:	certificate nr

Parc Technologique Alata BP 2 F-60550 Verneuil-en-Halatte
tél +33(0)3 44 55 66 77 **fax** +33(0)3 44 55 66 99 **internet** www.ineris.fr

Institut national de l'environnement industriel et des risques
Etablissement public à caractère industriel et commercial - RCS Senlis B 381 984 921- Siret 381 984 921 00019 - APE 743B

Safety Data Sheet (SDS)

Date of revision: 2010-11-30

Product: **High temperature- and pressure resistant detonating cord**

1. Substance-/preparation- and company identification

Company:

DYNAenergetics GmbH & Co. KG
Kaiserstraße 3
53840 Troisdorf, Germany
Tel. +49 (0) 2241 89 1580
Fax +49 (0) 2241 89 1288
www.dynaenergetics.com

2. Hazards identification

Fire, heat, friction, shock or other sources of ignition may cause the goods to explode with debris. Do not use above specified ranges for temperature.

3. Composition / information on ingredients

Detonating cords with plastic coating covering a textile braid with a secondary charge of HNS, RDX or HMX.

	CAS-No.
RDX :	121-82-4
HMX :	220-260-0
HNS :	20062-22-0

Plastics

4. First-aid measures

Inhalation: Remove victim from area of exposure – observe personal safety. Remove contaminated clothing and loosen remaning clothing. Allow patient to assume most comfortable position and keep warm. Keep at rest until fully recovered. Seek medical advice if effects persist.

Ingestion: Rinse mouth with water. If swallowed, do not induce vomiting. Drink water. Get to a doctor or hospital quickly.

Notes to physician: Treat symptomatically. Long term exposure to detonation fumes may result in poisoning.

5. Fire-fighting measures

Specific hazards: Explosive material. Avoid all ignition sources. Risk of explosion through shock, friction, fire or other sources of ignition.

Fire-fighting advice: Severe detonation hazard when exposed to heat. In case of a small fire where the actual explosive is not involved, carefully remove explosive to a safe distance. However, if explosive is burning, evacuate area immediately. Do not fight fire. Fire fighters to wear self-contained breathing apparatus and suitable protective clothing if risk of exposure to vapour or products of combustion. On burning will emit toxic fumes, including those of lead and depending on type also zinc.

6. Accidental release measures

Keep unauthorised people away. Shut off all possible sources of ignition. Handle with care. Collect and seal in properly labbeled containers. In case off transport accident notify the police.

7. Handling and storage

Storage
Storage/compatibility class: 1.4S
Storage conditions:
Place and prepare only in therefore authorised buildings, see national authoritiy regulations for explosives and explosive objects.
Recommended storage conditions:
-40℃ to + 60℃
Max. 65% rel. humidity with good ventilation.

Handling
Keep away from heat sources and naked flames
Keep away from ignition sources
Avoid mechanical influences (e.g. impact, crushing)
Smoking prohibited
Shelf life: 5 years at recommended storage conditions

8. Exposure controls / personal protection

Wear standard safety equipment – overalls and safety shoes. Always wash hands before smoking, eating, drinking or using the toilet.

9. Physical and chemical properties

Hexacord T150	=	175 ℃ / 1h
Hexacord PT150	=	150 ℃/1000 bar/1h
Octocord PT165	=	165℃/1000 bar/1h
Octocord PT 185	=	185 ℃/1000 bar/1h
Octoslim PT185	=	185 ℃/1000 bar/1h
Octoslim 40 PT185	=	185 ℃/1000 bar/1h
Octocord T190	=	190 ℃ / 1h
HNS Cord PT250	=	200 ℃/1400 bar/1h
HNS Slim PT250	=	200 ℃/1400 bar/1h
HNS Slim 40 T250	=	250 ℃ / 1h

	RDX	HMX	HNS
Melting point [℃]	204	282	320
Deflagration point [℃]	230	287	360

Solubility: Insoluble in water.

10. Stability and reactivity

In proper use, handling and storing no hazardous risks. Detonation may occur from impact, friction or excessive heat.

11. Toxicological information

The design of these products should prevent any chemical contamination. No adverse health effects expected if the product is handeld in accordance with this Safety Data Sheet and the product label. Symptoms or effects that may arise if the product is mishandled and overexposure occurs are:

Ingestion: No information available.
Inhalation: Not a likely route of exposure due to the design of the product. Test firing in poorly ventilated areas can cause presence of lead particles in air. Lead particles may be irritant to mocous membranes and respiratory tract.
Long term effects: Long term exposure to low concentrations of lead, through test firing of detonators in poorly ventilated areas, may result in altered haemoglobin breakdown, anaemia and central and peripheral

nervous system damage.
Toxicological Data: No data available for the product.

In proper handling no dangerous ecotoxicological events are to be expected.

12. Ecological information

Detonating cord should be destroyed only by authorised persons according to national law and regulation.

13. Disposal consideration

14. Transport information

IMDG/GGVSee-class:	1.4 S
UN-No.:	0349
Proper shipping name:	articles, explosive, n.o.s.
EMS-No.:	F-B, S-X
MFAG :	see 7.3
ICAO/IATA-DGR :	1.4 S packing method P101
RID/ADR and GGVE/GGVS-class:	1.4 S packing method P101
Additional information/remarks:	no mass explosion risk

15. Regulatory information

Hazard symbols and indications of danger for the substance/product:
E: explosive ;Xn: Harmful

R-Phrases:

2	Risk of explosion by shock, friction, fire or other sources of ignition.
20	Harmful by inhalation.

S-Phrases:

16	Keep away from sources of ignition - No smoking.
35	This material and its container must be disposed of in a safe way.
41	Do not inhale dust.
60	This material and its container must be disposed of as hazardous waste.

Hazard statements and precautionary statements according the Global Harmonized System (GHS):

Hazard pictograms (GHS)

H- Phrases:
H201 Explosive; mass explosion
H203 Explosive; fire, blast or projectile hazard
H205 May mass explode in fire
H332 Harmful if inhaled

P- Phrases:
P 210 from heat/ sparks/ open flames/ hot surfaces away. Do not smoke
P261 Do not inhale dust.
P501 This material and its container must be disposed of as hazardous waste.

16. Other information

Contact and transport only for persons resp. under survey of persons with "Befähigungsschein § 20 Sprengstoffgesetz" (Concession of explosive law) applicable in Germany only.

Observe in each case the regulations of national authorities.

Form and content according to Ordinance on Hazardous Substances § 14 with attachment I No.5.

The information contained herein is based on the present state of our knowledge. It serves as a guideline on proper handling of our product and the appropriate safety precautions but does not represent a guarantee of the product properties fixed by contract.

Being machine-written this Safety Information is not signed.