NITROERG
KGHM Group

NITROERG S.A.
Plac Alfreda Nobla 1
43-150 Bieruń, Poland
T: (+48) 32 466 19 00
F: (+48) 32 466 13 57
E: nitroerg@nitroerg.pl
www.nitroerg.pl

Second location of activity
ul. Zawadzkiego 1
42-693 Krupski Młyn, Poland
T: (+48) 32 466 21 03
F: (+48) 32 466 21 00

TECHNICAL SPECIFICATION

NITRONEL DUAL

DETONATOR ASSEMBLIES, NON – ELECTRIC DUAL ACTION

GENERAL INFORMATION

1. **Application in specific conditions:**
   - **NITRONEL DUAL** is recommended for use in open pit mines and to construction-engineering works.
   - **NITRONEL DUAL** **cannot be** used in conditions where the danger of coal dust and/or methane explosion exists.

2. **Information about the allowable period of storage**
   - The shelf life of **NITRONEL DUAL** is 12 (twelve) months from the date of manufacture.

3. **Storage conditions:**
   - **NITRONEL DUAL** have to be stored in original package in the temperature range 0 °C ÷ 45 °C.

4. **Disposal:**
   - Waste of non-electric detonators and expired non-electric detonators as well as packaging wastes should be delivered to a company with a proper permission to destroying.

ADDITIONAL INFORMATION

1. **Information about physical form and dimensions:**
   - Shell material: aluminium,
   - Shock tube color: according to customer requirements.
   - Length of shock tube: according to customers specification.
   - Plastic connector (PE).
   - Color of connector according Table 1.

2. **Information about initiating sensitivity:**
   - A single surface detonator contains nominal from 140 up to 200 mg of PETN, single in-hole detonator contains nominal 700 mg of PETN (equiv. standard cap 8), used as a secondary explosive.
   - To be sure that initiation of non-electric detonators **NITRONEL DUAL** is proper, it is recommended to use the appropriate initiation device or other approved for this purpose authorized means, included electric detonators.
   - Maximum 6 or 8 pieces of shock tubes can be initiated by single surface detonator, depending on type of connector.

3. **Information about loading conditions:**
   - In-hole detonator can be loaded to dry and wet blasting holes.

4. **Information about application in humid conditions:**
   - **NITRONEL DUAL** can be used under water at the depth 3 m within 48 hours.

5. **Information about application in high and low temperature:**
   - **NITRONEL DUAL** have to be used in the temperature range −25 °C ÷ 50 °C.

6. **Information about technical parameters:**
   - Nominal delay time of non - electric detonators in set of **NITRONEL DUAL** for particular delay time:
     a) for surface detonators according to Table 1.

Table 1

Nominal delay time of surface detonators [ms]	Colour of connector
0	green*
17	yellow*
25	red*
33	grey*
42	white*
67	blue*
109	black*

* or according to customers specification

b) for in - hole detonators according to Table 2.

Table 2

Nominal delay time of in - hole detonator [ms]
350
375
400
475
500

Set of **NITRONEL DUAL** may consist of any combination surface detonators and in - hole detonators, listed in this technical specification.

- Technical parameters for **NITRONEL DUAL** according to Table 3.

Table 3

VOD inside shock tube	2000 ± 200 m/s
Thermal stability in temperature 75 °C	48 h
Permissible pressure of use	max. 0,30 MPa

7. **Certificates:**
   - EC Type-Examination Certificate No. **1453.EXP.15.0213** issued by Central Mining Institute in Katowice, with attachment.
   - Classification Certificate – No. **008/IPO-BW/2014** issued by Institute of Industrial Organic Chemistry (class/ division: 1/1.4 S).
   - Classification Certificate – No. **010/IPO-BW/2012** issued by Institute of Industrial Organic Chemistry (class/ division: 1/1.4 S).
   - Classification Certificate – No. **022/IPO-BW/2014** issued by Institute of Industrial Organic Chemistry (class/ division: 1/1.4 S).

- Classification Certificate – No. **030/IPO-BW/2010** issued by Institute of Industrial Organic Chemistry (class/ division: 1/1.4 B).
- Classification Certificate – No. **030/IPO-BW/2014** issued by Institute of Industrial Organic Chemistry (class/ division: 1/1.4 B).

8. **Packaging (according to class/division):**

- Elementary – bundles of 5 or 10 pieces set of non - electric detonators with the same degree of delay – depending on length of shock tube in reel.
- Collective – PE bags.
- Transport – cardboard boxes arranged on wooden pallet. A cargo placed on pallet is wrapped with stretch film.
  At customer's request, another way of packing is acceptable.

9. **Transport quidelines:**
   - Proper transport name: **DETONATORS ASSEMBLIES, NON-ELECTRIC**
   - Class: **1**
   - Classification codes: **1.4 B** **1.4 S**
   - No. identification of material: **UN 0361** **UN 0500**

Specjalista Technolog
Dział Technologiczny
mgr inż. Patrycja Zieleźnik

Główny Technolog
Dział Technologiczny
mgr inż. Leszek Gierlotka

This document was issued in accordance with PN - EN 13857-3 guidelines.
Issued on: 31.08.2015 r.