



U.S. Department
of Transportation

East Building, PHH – 32
1200 New Jersey Avenue, Southeast
Washington, D.C. 20590

**Pipeline and Hazardous
Materials Safety Administration**

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

CLASSIFICATION OF EXPLOSIVES

Based upon a request by Cartridge Actuated Devices, Inc., 51 Dwight Place, Fairfield, NJ 07004, United States 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:

Detonators, non-electric, UN0455

U.N. CLASSIFICATION CODE: 1.4S

REFERENCE NUMBER

EX2011050376

PRODUCT DESIGNATION/PART NUMBER

D/N: 074140 (Slim Line Detonator)

NOTES: This classification is only valid when the detonators are packaged as follows:
Inner Packaging - Receptacle, sealed plastic with cushioning ring. Intermediate Packaging - Trays, die-cut multi-layer fiberboard, each containing not more than six (6) inner packagings overpacked in a chipboard box with cardboard sleeve closure and fiberboard pads on top and bottom. Outer Packaging - UN 4G fiberboard box, each containing not more than two (2) intermediate packagings with sufficient cellulosic cushioning material to prevent movement during transport. The device in this packaging has been tested in accordance with and passed the UN Series 6(d) test requirement in the 5th Revision of the UN Manual of Tests and Criteria.

DATED: 06/30/2011

For Dr. Magdy El-Sibaie
Associate Administrator for Hazardous Materials Safety

SLIM LINE DETONATOR

DESCRIPTION

The Fike Slim Line Detonator is a percussion fired detonator for use in downhole oil and gas completion operations. It is typically used in Tubing Conveyed Perforating (TCP) operations to initiate the detonation chain of perforating guns for the completion of oil and gas wells. The Slim Line Detonator is used in place of the standard percussion initiator or in smaller firing heads.



The Slim Line Detonator is available in a single configuration. It has a stainless steel body that resists corrosion and has a 5 year shelf life. The Slim Line Detonator initiates detonation of HMX and HNS boosters in a 1.00" gap and is intended for use in existing tools that meet the firing pin dimensions and other specifications listed in the data sheet.

SPECIFICATIONS

At Fike, our highest goal is to ensure that our energetic products are safe for handling and use by customers. Fike Percussion Initiators have undergone extensive testing to meet and exceed the following standards and regulations:

- API RP-67 Standard 5lb No-Fire Test
- API RP-67 Standard 10lb All-Fire Test
- API RP-67 Six (6) Foot Drop Test
- U.S. Military Standard 331 - Forty (40) Foot Drop Test
- DOT Hazardous Material Requirements
- CE Certified Safety Directives

Material of Construction:	Body – Stainless
Time and Temperature Exposure:	400°F for 200 Hours
Gap:	Initiates boosters at 1.00" Max Gap
Firing Characteristics	All Fire: 10 ft-lbs applied at 9.7 ft/s No Fire: 5.0 foot-pounds maximum
Recommended Firing Pin:	60° with .05 inch spherical radius (See Illustration)
Pressure Rating:	10,000 psi before function
Shipping Classification:	DOT Hazard Class 1.4S UN Number: UN 0455 Ref Number: EX 2011050376 CE Cert Number: ENB/D/174/11
Shelf Life:	5 Years

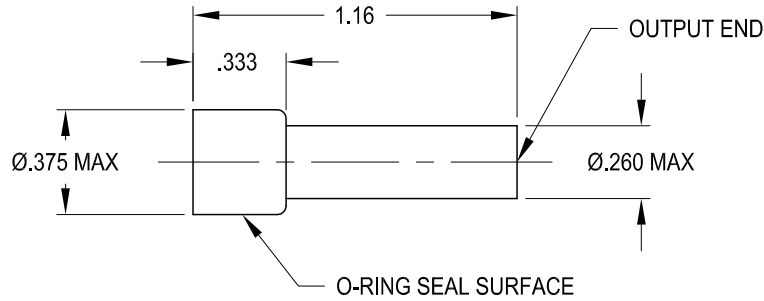
Note: All information is subject to change without notice. It is the users responsibility to conduct any necessary testing and ensure the Fike Slim Line Detonator is suitable for the users intended application, prior to use.

APPLICATIONS

- Explosive Trains
- Perforating Guns
- Tubing Conveyed Perforating
- Specialized Applications

Form No. O.1.12.01-3

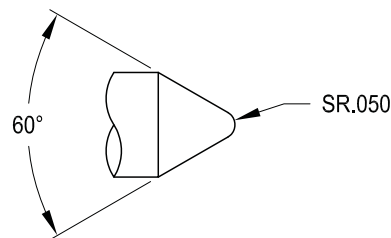
DIAGRAM



ORDERING INFORMATION

Fike P/N	Description
074140-1	Slim Line Detonator

Note: Consult Fike for applications beyond the standard specifications.



FIRING PIN CONFIGURATION FOR INFORMATIONAL PURPOSES ONLY

FIKE SERVICES

Fike's oilfield expertise creates a service and support structure that you can trust for your specific pyrotechnic applications

- Engineers and application specialists can assist in product applications and technical support.
- Rapid Response – lower costs and shorter lead times with Fike Oilfield products.
- Qualification testing of components under simulated applications and field testing.
- Manufactured by Cartridge Actuated Devices, Inc., a Fike Corporation company and industry leader in pyrotechnic products.





CONTAINER TESTING LABORATORY, INC.
 PACKAGE ENGINEERING • RESEARCH • CONSULTATION • TESTING
 607 FAYETTE AVENUE • MAMARONECK, NEW YORK 10543
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 contestlab@hotmail.com • www.containertechologylabs.com

**PACKAGING PERFORMANCE UN/ICAO/IMDG CERTIFICATE
 INCLUDING AIR TRANSPORT**

CONTAINER TESTING LABORATORY ID #+AQ

Certification Report #0605
 CTL P. #45533-D

REQUESTING PARTY:

Mr. Michael Bowen
 DG Supplies, Inc.
 4 Corporate Drive, Suite D, Bldg 4
 Cranbury, NJ 08512

1. Product tested: combination packaging, comprising four (4) 16 Oz. narrow mouth amber glass round bottles with black phenolic screw caps with poly-cone liners, each sealed with adhesive plastic tape, inner packaging inserted 2 X 2 into a plastic lined center special slotted fibreboard box (International Box Code 0204) outer packaging backfilled with absorbent dunnage void space filler. The use of other packaging methods or components may render this report invalid.
2. Designated packaging code type: 4GV
 Packaging nomenclature: Combination packaging
3. Tests performed:

TEST	SPEC	INTENSITY	RESULTS
Cobb	Para 6.1.4.12.1	112.8 g/m ²	Pass
Drop	Para 6.1.5.3	1.8 meter	Pass
Internal Pressure (Hydraulic)	Para 6.1.5.5	250 kPa	Pass
Stacking	Para 6.1.5.6	182 kg	Pass
Vibration	49CFR 178.608	1 hour	Pass

4. Authentication: USA/+AQ0605


5. I certify that the samples of packaging prepared as for transport, described herein and tested in February 2012, in the manner summarized in paragraph (3) above, successfully passed the tests according to the criteria described in paragraphs 6.1.4.12.1, 6.1.5.3, 6.1.5.5 and 6.1.5.6 as set forth in the UN Recommendations of the Committee of Experts on the Transportation of Dangerous Goods, Chapter 6, 16th Revision and US 49CFR Section 178.608, and that the packages may continue to bear the marking authorized under the competent authority ruling 49CFR Section 178.601(g)(2):



4GV / X 8 / S / **
USA / +AQ0605

** insert year the packaging is manufactured

By:


 CONTAINER TESTING LABORATORY, INC.
 CERTIFICATION OFFICER

Date: February 27, 2012



GB EXPLOSIVES NOTIFIED BODY
Health & Safety Laboratory
Harpur Hill, Buxton, Derbyshire, SK17 9JN, UK

Tel: +44 (0)1298 218150
Fax: +44 (0)1298 218180
Email: enb@hsl.gov.uk
www.hsl.gov.uk

**CERTIFICATION OF EXPLOSIVES
UNDER G.B. STATUTORY INSTRUMENT No. 2714**

**APPROVAL TO AFFIX THE CE MARK AND THE IDENTIFICATION NUMBER OF THE
EXPLOSIVES NOTIFIED BODY (0519)**

Being a Notified Body in accordance with the G.B. Statutory Instrument No. 2714 and the Directive 93/15/EEC of 5 April 1993 on the harmonization of the provisions relating to the placing on the market and supervision of explosives for civil uses, the Explosives Notified Body (ENB) hereby grants approval for the CE mark and the Identification Number (0519) of the ENB to be affixed to the product described below. The approval is granted subject to the ENB's Terms and Conditions and to the use of Module C to demonstrate conformity to type.

Details of Explosive Product for which Approval for Issue of CE mark is Granted

Product Type: Detonator.

Product Name: SLIM LINE DETONATOR as specified in Annex 1 to EC Type Examination Certificate ENB/D/174/11 (Issue 1) dated 13 October 2011.

Manufacturer's Name and Address: Cartridge Actuated Devices, 51 Dwight Place, Fairfield, New Jersey 07004, USA.

Applicant's Name and Address: Fike Corporation, 704 S.W. 10th Street, Blue Springs, Missouri, 64015, USA.

Signed 

Director, GB Explosives Notified Body

Date: 19 October 2011

Issue Number: 1



CARTRIDGE ACTUATED DEVICES, INC.
51 DWIGHT PLACE FAIRFIELD, NJ 07004

Rev. B Date: 081011

HAZARDOUS CHEMICAL MATERIAL SAFETY DATA SHEET
(Conforms to the requirements of 29 CFR 1910.1200)

I. PRODUCT IDENTITY: Detonators, non-electric, UN0455
1.4S, EX2011050376
(Slim Line Detonator, P/N: 074140)

CARTRIDGE ACTUATED DEVICES, INC. 24 HOUR EMERGENCY PHONE #
51 Dwight Place. IN U.S.A.: 800-424-9300
Fairfield, N.J. 07004 OUTSIDE U.S.A.: 202-483-7616 CALL COLLECT
Prepared by CAD Engineering Dept. FIRE, SPILL, EMERGENCY ONLY
Telephone Number: 973-575-1312

Material(s) described is/are: Company Proprietary Explosive Device and by-products of ignition.

II. HAZARDOUS INGREDIENTS AND EXPOSURE LIMITS: N/A

Chemical and common name of Hazardous chemical ingredients:

** COMMON NAME	CAS NO.
Potassium Chlorate	3811-04-9
Antimony Sulfide	1345-04-6
Calcium Silicide	12013-56-8
Titanium	7440-32-6
Potassium Perchlorate	7778-74-7
Silver Azide	013863-88-2
Hexanitrostilbene	020062-22-0

III. PHYSICAL AND CHEMICAL CHARACTERISTICS

Boiling point: N/A	Solubility in water: SLIGHT
Specific gravity: N/D	pH: N/D
Vapor Pressure: N/D	Evaporation Rate: N/A
% Volatile: NIL	

IV. FIRE, EXPLOSION AND REACTIVITY HAZARD DATA

DANGER Extremely Flammable --EXPLOSIVE--
Keep away from heat and keep shunted.

Flash point:	N/A
Flammable Limits:	N/A
Auto-ignition temperature:	More than 450°F
Extinguishing media:	Water, Dry Chemical
Special Fire-Fighting procedures:	Do not fight fires directly Involving explosives, evacuate area
Grounding Procedure:	Prevent transient static discharge
Stability Considerations:	Azide compounds form unstable Explosive compounds when in combination with copper, brass, bronze and moisture
Incompatibility:	Shock, high heat, oil. DO NOT STORE WITH OUTPUT EXPLOSIVES.
Hazardous decomposition products:	N/A
Hazardous products of combustion:	Blast effect, high temperature flame, carbon monoxide, carbon dioxide, trace amounts of titanium oxides and silver.
Hazardous Polymerization:	None



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51 DWIGHT PLACE FAIRFIELD, NJ 07004

Rev. B Date: 081011

V. HEALTH HAZARD DATA:

Emergency and First Aid Procedure:

Treat burns and any laceration by cleaning and applying sterile bandages.
Transport individual for further medical treatment.

Primary Route of Entry: Inhalation of gases from detonation.
Cancer Information: N/D
Reported effects on Humans: N/D
Other: Blast effect, high temperature flame.

VI. SPILL AND LEAK PROCEDURES

Steps to be taken if material is spilled:

Clean spill after liberally wetting down with solvent (Acetone, Butyl Acetate or Alcohol). Wipe the material up with paper towels or with cotton rag. Keep a fire extinguisher present. Remove all sources of Ignition, wear safety glasses, protective gloves, and non-static generating clothing when cleaning spills.

Waste Disposal Method:

Burn in the open in an isolated location. Remotely ignite with slow burning train or electrically initiated squib. Disposal must be in accordance with local, state, and Federal regulations. Call Cartridge Actuated Devices for assistance, if needed.

VII. APPLICABLE CONTROL MEASURES:

Appropriate Hygienic Practices: N/A

Personal Protective Equipment: Safety glasses grounding devices (ground straps and/or conductive footwear).

Work Practices: Avoid high temperatures, and wear personal protective equipment.

Handling and Storage precaution: Recommended storage 70°F, DO NOT STORE WITH OUTPUT EXPLOSIVES.

Engineering Controls: Avoid physical shock and static shock. Shield personnel from blast effects and fragments.

Protective Measures during Repair and Maintenance:
Eliminate static discharge sources. Avoid flame or high heat. Shield device when working with the device.

DISCLAIMER: The above information taken from various published and unpublished sources is believed to be accurate and represent the best information currently available to us. However, we make no warranty of the accuracy of such information express or implied, and assume no liability resulting from its use. Users should make their own investigation to determine suitability of the information for their particular purposes.



CARTRIDGE ACTUATED DEVICES, INC.
51 DWIGHT PLACE FAIRFIELD, NJ 07004

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THIS UNIT IS NOT USER SERVICEABLE. DO NOT ATTEMPT DOWNLOADING OR
DISASSEMBLING.

Net Reactive Material Content 0.609 grams