



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:

Igniters, UN0454

U.N. CLASSIFICATION CODE: 1.4S

REFERENCE NUMBER

EX2015040369

PRODUCT DESIGNATION/PART NUMBER

High Temperature Percussion (HTP) Igniters, P/N's:
072170-1, 072170-3

NOTES: The following packaging method is assigned: Inner Packaging - Bags, heat-sealed static-resistant plastic, each containing not more than ten (10) igniters. Intermediate Packaging - Receptacles, Schedule 40 steel pipe nipple with end caps, each containing not more than two (2) inner packagings overwrapped in Kimpack cushioning material. The capped pipe nipples are then overwrapped in anti-static bags and Kimpack cushioning material. Outer Packaging - UN 4G fiberboard box, each containing one (1) intermediate packaging.

DATED: 09/24/2015

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

HIGH TEMPERATURE PERCUSSION (HTP) IGNITER

DESCRIPTION

Fike Corporation is proud to introduce the High Temperature Percussion (HTP) Igniter. The Fike HTP Igniter is a stand alone multi-use primer. It is designed for use in downhole oil and gas exploration, completion, and production applications. It can be used to initiate time delays, explosive trains, and other downhole oilfield devices. The HTP Igniter can meet applications where the exposed temperature is up to 425°F, duration of 200 hours or less, and with a gap of 1.0 in (25.4mm) maximum.



The HTP Igniter is constructed with a stainless steel closure disc that is laser welded into the assembly. This provides a one piece, hermetically sealed enclosure to protect and preserve the explosive primer for extended life and high reliability under harsh conditions. The units are leak tested and labeled with the lot number to meet quality assurance and traceability standards. Two sizes are available to fit standard primer holders.

FEATURES

- Scored Closure Disc
- Industry Standard Dimension
- Hermetically Sealed

BENEFITS

- Provides a targeted and concentrated burst pattern for reliable initiation of secondary components
- Directly replaces other igniters and can be installed into existing primer holders. Each unit is helium leak tested. This maintains the safety and quality of the component and its contents in harsh down-hole environments.

SPECIFICATIONS

Material of Construction:	Body - Stainless Steel
Operating Temperature:	Up to 425°F (218°C)*
Time and Temp Exposure:	Up to 200 hours at 425°F (218°C)*
Gap:	Up to 1.0 inches (25.4 mm)*
All Fire:	10 foot-pounds minimum
No Fire:	2 foot-pounds maximum (Complies with API RP-67)
Recommended Firing Pin:	.05 inch spherical radius*
Maximum Helium Leak Rate:	1 x10 ⁻⁶ Standard Cubic Centimeters Per Second
Shipping Classification:	DOT Hazard Class 1.4S

* Consult Fike for applications beyond the standard specifications

Note: All information and ratings are subject to change without notice. The user must be satisfied with the products suitability for all applications.

APPLICATIONS

- Time Delay Fuses
- Explosive Trains
- Detonators
- Gun Systems
- Perforating Guns
- Specialized Applications
- Setting Tools
- Specialized Equipment

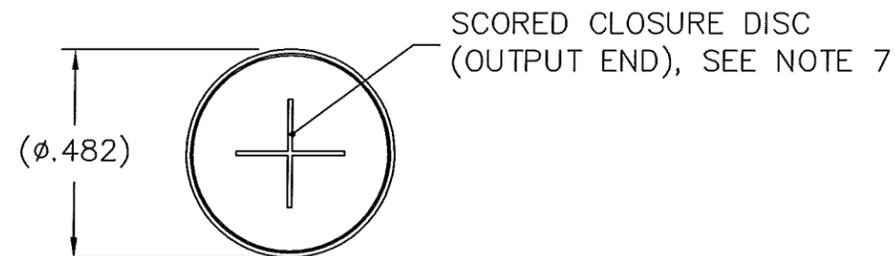
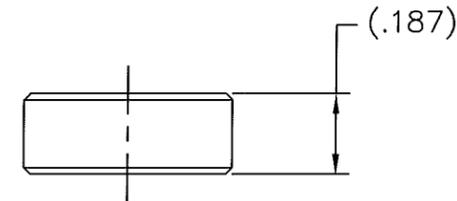
Form No. O.1.06.01

THIS DRAWING CONSTITUTES THE CONFIDENTIAL INFORMATION OF CARTRIDGE ACTUATED DEVICES, INC. AND ITS RECEIPT OR POSSESSION DOES NOT CONFER ANY RIGHT IN OR LICENSE TO USE IT OR THE INFORMATION DISCLOSED HEREIN NOR ANY RIGHT TO REPRODUCE THIS DRAWING OR ANY PART HEREOF WITHOUT THE WRITTEN CONSENT OF CARTRIDGE ACTUATED DEVICES, INC.

REVISION			
SYM	DESCRIPTION	DATE	APPROVAL
-			

NOTES:

1. PACKAGE WITH PART NUMBER AND LOT NUMBER.
2. MATERIAL OF CONSTRUCTION:
STAINLESS STEEL
3. TEMPERATURE RESISTANCE:
OPERATING - 425°F, 200 HOURS MAXIMUM
4. HERMETICITY:
LEAK RATE IS LESS THAN 1x10⁻⁶ STANDARD CUBIC CENTIMETERS PER SECOND OF HELIUM
5. OUTPUT:
IGNITES VARIOUS DELAYS AND DETONATOR DELAYS.
6. GENERAL PURPOSE PRIMER SUITABLE FOR HIGH TEMPERATURE DOWN HOLE APPLICATIONS.
7. SURFACE NOTED, OUTPUT END, IS RED IN COLOR.
8. BACK SURFACE MARKED WITH "FP" IN CENTER, (3) DIGIT LOT NUMBER AND (4) DIGIT YEAR.
9. .05" SPHERICAL RADIUS FIRING PIN RECOMMENDED, CONTACT CAD FOR MORE SPECIFIC INFORMATION.
10. COMPLIES WITH 2 FT-LB NO-FIRE REQUIREMENT SPECIFIED IN THE API RP-67.
11. SHIPPING CLASSIFICATION; 1.4S
12. SHELF LIFE: 5 YEARS



COMPUTER GENERATED, CHANGES SHALL BE INCORPORATED BY THE DESIGN ACTIVITY.

QTY	PART NO.	DESCRIPTION/NOMENCLATURE	MATERIAL, SPECIFICATION OR NOTE
✓	072170-1	ASSEMBLY, HTP IGNITER	
LIST OF MATERIALS			
UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES.		DIAMETERS ABOUT A COMMON CENTER ARE CONCENTRIC WITHIN .005 T.I.R.; FEATURES DRAWN AS BEING SQUARE OR PARALLEL ARE SQUARE OR PARALLEL WITHIN .003 PER INCH OF LENGTH, UP TO A LIMIT OF .030; UNDIMENSIONED FILLET RADII ARE .032 ± .010 AND DIMENSIONS APPLY AFTER PLATING OR ANODIZING. BREAK EDGES R .01 MAX.	
UNSPECIFIED TOLERANCES SHALL BE: XX ± .01 ANGLE ± 5° XXX ± .005 FRACTIONS ± 1/32		CAD CARTRIDGE ACTUATED DEVICES, INC. FAIRFIELD, NEW JERSEY	
PROCESS		HIGH TEMPERATURE PERCUSSION IGNITER (HTP IGNITER)	
NEXT ASSY	USED ON	CAGE CODE	SIZE DWG. NO. REV
		22567	C 072170 -
APPLICATION		SCALE	SHEET 1 OF 2
125/ ALL OVER EXCEPT AS NOTED.		OG DRWN 02/25/15	
		CHKD 3-31-15	
		APPRD 3-31-15	

072170



CONTAINER TESTING LABORATORY, INC.
 PACKAGE ENGINEERING • RESEARCH • CONSULTATION • TESTING
 607 FAYETTE AVENUE • MAMARONECK, NEW YORK 10543
 PHONE: (914) 381-2600 • FAX: (914) 381-0143
 contestlab@hotmail.com • www.containertechnologylabs.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: _____

Date: February 27, 2012

CONTAINER TESTING LABORATORY, INC.
 CERTIFICATION OFFICER



INSTITUT NATIONAL DE L'ENVIRONNEMENT INDUSTRIEL ET DES RISQUES

NATIONAL INSTITUTE FOR INDUSTRIAL ENVIRONMENT AND RISK

- decree nr 90-1089, 7 December 1990 -

- order from the Minister of Ecology, Energy, Sustainable Development and Sea, 4 May 2010 -

ATTESTATION D'EXAMEN CE DE TYPE No :
0080.EXP.15.0016

EC TYPE EXAMINATION CERTIFICATE NR:
0080.EXP.15.0016

LA PRESENTE ATTESTATION PORTE SUR LE PRODUIT SUIVANT :
High Temperature Percussion igniter size 0.482" (P/N 072170-1)
High Temperature Percussion igniter size 0.375" (P/N 072170-3)

THIS CERTIFICATE IS RELATING TO THE FOLLOWING PRODUCT:
High Temperature Percussion igniter size 0.482" (P/N 072170-1)
High Temperature Percussion igniter size 0.375" (P/N 072170-3)

TYPE GENERIQUE (ET CATEGORIE) DU PRODUIT :
Allumeur à percussion

GENERIC TYPE (AND CATEGORY) OF THE PRODUCT:
Percussion cap

TITULAIRE DE L'ATTESTATION:
(voir liste des sites de fabrication en annexe)
Cartridge Actuated Devices, Inc.
51 Dwight Place
Fairfield, New Jersey 07004, USA

HOLDER OF THE CERTIFICATE:
(see list of manufacturing sites in appendix)
Cartridge Actuated Devices, Inc.
51 Dwight Place, Fairfield
New Jersey 07004, USA

L'Institut National de l'Environnement Industriel et des Risques (INERIS), notifié sous le numéro d'identification 0080 conformément à l'article 6.2 de la directive 93/15/CEE du Conseil du 5 avril 1993, et accrédité par le COFRAC sous le numéro 5-0045 dans le cadre de l'activité de certification de produits et services (portée disponible sur www.cofrac.fr), atteste que le produit désigné ci-avant est reconnu conforme aux exigences essentielles de sécurité telles que définies en annexe I de la Directive 93/15/EEC.

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 of 5 April 1993, and accredited by COFRAC under number 5-0045 for certification of products and services (scope available on www.cofrac.fr), testifies that the above named product is recognized to conform to the essential safety requirements as defined in annex I of the Directive 93/15/EEC.

Les procédures de certification sont disponibles sur www.ineris.fr.

The certification procedures are available on www.ineris.fr.

La décision de certification **DSC-15-154625-06700A, PNEO-AgCE 5**, en date du **10 juillet 2015**, a été prise sur la base de documents et d'information fournis par le fabricant à l'INERIS.

The decision on certification **DSC-15-154625-06700A, PNEO-AgCE 5**, dated **July 10, 2015**, was made on the basis of documents and information provided by the manufacturer to INERIS.

Les résultats de l'évaluation de la conformité sont donnés dans le rapport d'examen confidentiel **DSC-15-154625-06699A, PNEO-AgCE 5/105**, en date du **10 juillet 2015**.

The conformity assessment results are given in the confidential examination report ref. **DSC-15-154625-06699A, PNEO-AgCE 5/105**, dated **July 10, 2015**.

Toute modification de la composition et/ou de la conception du produit doit être communiquée à l'INERIS.

Any change of the composition and/or the design of the product have to be communicated to INERIS.

Verneuil-en-Halatte, le 10 juillet 2015
Le Directeur Général de l'INERIS
Par délégation, le Délégué Général Certification

Verneuil-en-Halatte, July 10, 2015
The Chief Executive Officer of INERIS
By delegation, the Chief Certification Officer



C. MICHOT

This certificate may be reproduced only in its entirety.

(IM-1771AB - 10/10/2014) Folio 1/2

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

Établissement public à caractère industriel et commercial - RCS Senlis B 381 984 921 - Siret 381 984 921 00019 - APE 7120B



INSTITUT NATIONAL DE L'ENVIRONNEMENT INDUSTRIEL ET DES RISQUES
NATIONAL INSTITUTE FOR INDUSTRIAL ENVIRONMENT AND RISK

Annexe à l'attestation d'examen CE de type n°0080.EXP.15.0016
Appendix to the EC type-examination certificate nr°0080.EXP.15.0016

A1- NOM DU PRODUIT (ET VARIANTES) / NAME OF THE PRODUCT (AND VARIANTS):

- High Temperature Percussion (HTP) igniter size 0.482" (P/N 072170-1)
- High Temperature Percussion (HTP) igniter size 0.375" (P/N 072170-3)

A2- DESCRIPTION DU PRODUIT / PRODUCT DESCRIPTION :

Identification générale / *General identification :*

- étui / *case* : disque en acier inoxydable / *stainless steel disc*
- diamètre externe / *external diameter* : 12.2 mm (0.482") for P/N 072170-1
9.5 mm (0.375") for P/N 072170-3
- hauteur / *height* : 4.7 mm (0.187") for P/N 072170-1
3.9 mm (0.155") for P/N 072170-3
- charge explosive / *explosive charge* : 0.06 g of PY-144 (mix. of potassium perchlorate, titanium and antimony sulfide)
- masse totale / *gross weight* : 4.260 g for P/N 072170-1
2.159 g for P/N 072170-3
- référence fabricant / *manufacturer's reference* : 072170-1
072170-3

Conditions particulières pour la manipulation, l'assemblage et l'utilisation / *Particular conditions for handling, assembling and use :*
Comme spécifié par le fabricant / *As specified by the manufacturer*

- durée de vie / *shelf life* : 5 ans / *years*
- températures limites / *limit temperatures*
 - pour l'utilisation / *for use* : 218°C (425°F) for 200 hours maximum
 - pour le stockage / *for storage* : - 30°C / + 60°C / 90 % RH max
- énergie de tout-feu / *all-fire energy* : 14.9 J (11 ft-lb) minimum
- énergie de non-feu / *no-fire energy* : 6.7 J (5 ft-lb) maximum

A3- SITE(S) DE FABRICATION / MANUFACTURING SITE(S) :

L'évaluation de l'**assurance qualité de la production (module D)** a été retenue pour le (les) site(s) de fabrications ci-dessous :
*The assessment of the **production quality assurance (module D)** has been retained for the manufacturing site(s) below:*

Cartridge Actuated Devices, Inc.
BYRAM Plant
40 Old Indian Spring Road
Andover, New Jersey 07821, USA

A5- REFERENTIEL(S) :

- Directive 93/15/CEE

A5- REFERENCE SCHEME(S):

- Directive 93/15/EEC





HAZARDOUS COMMUNICATION SAFETY DATASHEET
(Conforms to the requirements of 29 CFR 1910.1200)

I. PRODUCT IDENTIFICATION:

<u>PRODUCT IDENTITY:</u>	Igniters, UN0454 1.4S, PG II (High Pressure Percussion Igniter, P/N 072170-1 and 072170-3)
CARTRIDGE ACTUATED DEVICES, INC. 51 Dwight Place Fairfield, N.J. 07004 Telephone Number: 973-575-1312 Prepared by CAD Engineering	24 HOUR EMERGENCY PHONE # IN U.S.A.: 800-424-9300 OUTSIDE U.S.A.: 202-483-7616 CALL COLLECT FIRE, SPILL, EMERGENCY ONLY
Material(s) described is/are:	Electro-Pyrotechnic device and by-products of initiation.

II. HEALTH HAZARD(S) IDENTIFICATION:

CLASSIFICATION OF THE SUBSTANCE OR MIXTURE
CLASSIFICATION ACCORDING TO REGULATION (EC) No 1272/2008



GHS EXPLOSIVE

P210- Keep away from heat, open flames, sparks. – No smoking

P243- Take precautionary measures against static discharge

P280- Wear eye protection

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

III. INGREDIENT COMPOSITION:

Chemical and common name of Hazardous chemical ingredients:

<u>** COMMON NAME</u>	<u>CAS NO.</u>
Antimony Sulfide	001345-04-6
Titanium	007440-32-6
Potassium Perchlorate	007778-74-7



HAZARDOUS COMMUNICATION SAFETY DATASHEET
(Conforms to the requirements of 29 CFR 1910.1200)

IV. FIRST-AID MEASURES:	
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 initiation.
Cancer Information:	N/D
Reported effects on Humans:	N/D
Other:	Blast effect, high temperature flame.
V. FIRE-FIGHTING MEASURES:	
Extinguisher Media:	Water, Dry Chemical
Special Fire-Fighting Procedures:	Do not fight fires directly involving explosives, evacuate area
VI. ACCIDENTAL RELEASE MEASURES:	
Steps to be taken if material is spilled: (applies only if actuator is ruptured) Clean spill after liberally wetting down with solvent (Acetone, Butyl Acetate or Alcohol) by wiping material up with paper towels or with cotton rag. Keep a fire extinguisher present. Wear safety glasses, protective gloves, and non-static generating clothing during clean up or transfer operation.	
VII. HANDLING AND STORAGE:	
Handling and Storage precaution: Recommended storage 70°F, DO NOT STORE WITH INITIATING EXPLOSIVES	
VIII. EXPOSURE CONTROL/PERSONAL PROTECTION:	
Appropriate Hygienic Practices:	N/A
Personal Protective Equipment:	Safety glasses, nitrate gloves & grounding devices (ground straps and/or conductive footwear).
Work Practices:	Avoid high temperatures; Wear personal protective equipment. Work behind shielding and keep Actuator shunted.
Engineering Controls:	Work with device in a shielded area, keep shunted until installed. Avoid physical shock.



HAZARDOUS COMMUNICATION SAFETY DATASHEET
(Conforms to the requirements of 29 CFR 1910.1200)

IX. PHYSICAL AND CHEMICAL PROPERTIES:	
Flash Point:	N/D
Flammable Limits:	None, Explosive Device
Auto-Ignition Temperature:	425° F
Boiling point:	N/A
Specific gravity:	N/A
Vapor Pressure:	N/D
% Volatile:	Negligible
Odor:	N/A
Solubility in water:	N/A
pH:	N/D
Evaporation Rate:	N/A
Appearance:	N/A
Shelf Life:	5 years

X. STABILITY AND REACTIVITY:	
Grounding Procedure:	Prevent transient static discharge.
Stability Considerations:	Stable.
Incompatibility:	None if cartridge(s) remains intact.
Hazardous Decomposition Products:	None.
Hazardous Products of Combustion:	Flame, high heat in small quantities, oxides of titanium, and potassium chloride salt.
Hazardous Polymerization:	None.

XI. TOXICOLOGICAL INFORMATION:	
** All information applicable only if the cartridge ruptures before initiation. Hazardous decomposition products: N/A	

XII. ECOLOGICAL INFORMATION:	
N/A	

XIII. DISPOSAL CONSIDERATION:	
Waste Disposal Method: Remotely initiate individual Actuators in a restraining fixture or burn in the open in an isolated location. Disposal must be in accordance with local, state, and Federal regulations.	

XIV. TRANSPORTATION INFORMATION:	
Igniters, UN0454 1.4S, PG II (High Pressure Percussion Igniter, P/N 072170-1 and 072170-3)	



CARTRIDGE ACTUATED DEVICES, INC.
40 Old Indian Spring Road, New Jersey 07004

072170-1 & -3
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HAZARDOUS COMMUNICATION SAFETY DATASHEET
(Conforms to the requirements of 29 CFR 1910.1200)

XV. REGULATORY INFORMATION:

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

XVI. OTHER INFORMATION:

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

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

Net Reactive Material Content: 0.060 grams maximum per unit.

Last Revised: July 22, 2015