

Janifer



U.S. Department  
of Transportation

**Research and  
Special Programs  
Administration**

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

FEB 24 1998

Mr. Steven Charles Hunt  
Shipmate, Inc.  
2615 Voorhees Avenue  
Suite 6  
Redondo Beach, CA 90278

Dear Mr. Hunt:

This is in response to your letter, telefax, and telephone conversation with a member of my staff on behalf of your client who would like to transport a device, described as an "ignition cartridge," under the Hazardous Materials Regulations (HMR; 49 CFR Parts 171-180). You state that the device does not meet the definition of an explosive substance. The device is used to preheat a cutting torch used for underwater rescue, and for military and law enforcement operations. You also stated that if the device ruptured and the iron strips uncoiled, the device would probably heat to ignition in air.

Based on the information you submitted and information available to us, it is our opinion that this device should be described as "Pyrophoric metals, n.o.s., 4.2, UN 1383, I", and is subject to the HMR for the following reasons:

1. The device contains a pyrophoric form of iron.
2. The Hazardous Materials Regulations and the International Civil Aviation Organization Technical Instructions for the Safe Transportation of Dangerous Goods by Air provide no exceptions for pyrophoric metals.
3. Your letter provided little detail about how testing was conducted on the device. Therefore, we assume that the 0.003" metal foil was punctured and the device was allowed to stand under ambient conditions. Under these conditions, the rate of heating would be so slow that a temperature rise of about 10°F would be noted. However, if the device is ruptured and the iron strips are uncoiled, the device would probably heat to ignition in air.

173.124

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98-0524

Your client can submit an application for exemption from § 173.124(b), if it can be demonstrated that the completed device does not meet the criteria for a Division 4.2, and will not meet this division under any reasonable conditions occurring during transportation.

I hope this information is helpful. if you need additional assistance, do not hesitate to contact us.

Sincerely,

A handwritten signature in black ink, reading "Hattie L. Mitchell". The signature is written in a cursive style with a large, prominent initial "H".

Hattie L. Mitchell, Chief  
Regulatory Review and Reinvention  
Office of Hazardous Materials Standards

FEB 24 1998

Mr. Steven Charles Hunt  
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Suite 6  
Redondo Beach, CA 90278

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Sincerely,

Original  
Hattie L. Mitchell

Hattie L. Mitchell, Chief  
Regulatory Review and Reinvention  
Office of Hazardous Materials Standards

Jkarim:dhm-12:68553:02/03/98

Revised:hlm:02/05/98

File: 173.124

SC: 333

*Karim*  
*File: 173.124*  
*SL: 333*

# ShipMate, Inc.

1810 Green Lane  
Redondo Beach, CA 90278-3618  
310-798-4200 phone  
310-798-4339 fax  
800-506-7984 pager  
shipmate @ shipmate.com internet

Hazardous Materials Transportation Training  
Software & Information Systems  
Civil Penalty Case Review & Appeal  
Compliance Inspections & Audits  
Hazardous Material Incident Response  
Container & Portable Tank Inspections  
CD ROM Reference Products  
IMDG, IATA, DOT, OSHA & EPA Specialists

<b>To: Jennifer Karim</b>		<b>From : Steven Charles Hunt</b>
<b>Fax Number : 1-202-366-8700</b>		<b>Company : ShipMate Inc</b>
<b>Date : 12/24/97</b>	<b>Time : 12:05:58 PM</b>	<b>For Information Call: 1-310-798-4200</b>
<b>Subject : ADDITIONAL INFO FOR LTR OF INTERPRETATION (RESUBMISSION)</b>		<b>Fax Number : 1-310-798-4339</b>

Dear Ms. Karim:

Attached, please find a letter which I had addressed to Mr. Schultz.

I sincerely appreciate your assistance in expediting this request. my client is concerned and desperately needs your guidance because the HMR are not clear on this particular issue.

Again, if i may be of assistance, please call me.

Thanks and Best Regards,

Steven Charles Hunt  
ShipMate, Inc.

# ALLOY SURFACES

A SUBSIDIARY OF CHG GROUP, INC.



## RAPID FIRE CUTTING ROD IGNITION CARTRIDGE TEST RESULTS

*TESTS PERFORMED ON FEBRUARY 5, 1997*

Two (2) Rapid Fire Cutting Rod Ignition Cartridges were tested to determine the case temperature rise in degrees F over a time period of thirty (30) minutes from initiating the cartridge.

Two type K thermocouples, designated TC1 and TC2 were attached to the cartridges. TC1 - 12mm from the bottom and TC2 - 24mm from the bottom. Temperature measurement was provided by a Leeds & Northrup Model 2500 digital recorder.

The tests were conducted in a temperature stable (71°F), draft free room with the rods placed on one (1) inch of insulating material to eliminate any external temperature influences. Cartridge #1 experienced a rise of 10°F and cartridge #2 a rise of 8°F over the 30 minute test period.

Please see the attached data sheet and graph.

**ShipMate, Inc.**  
2615 Voorhees Avenue, Suite 6  
Redondo Beach, CA 90278  
Phone: 310-370-1237  
Fax: 310-370-1397  
E-mail: chemtrans@aol.com

## **ShipMate**

July 3, 1997

Mr. Edward Mazzullo  
Chief, Standards Branch  
U.S. Department of Transportation  
Research and Special Programs Administration  
400 Seventh Street, SW  
Washington, DC 20590-0001

Subj: Interpretation, Request for Written Interpretation

Dear Mr. Mazzullo:

I am submitting this written request for interpretation on behalf of a client who would like to offer into transportation a device which is described as an "ignition cartridge."

The device does not meet the definition of an explosive substance. It is a device which is used to pre-heat a cutting torch which is used for underwater rescue, and military and law enforcement operations.

The device can best be described as a steel rod, approximately 5/8" in diameter, which has been bored. An activated iron foil is coiled and pressed into the annulus under an inert atmosphere and the foil is encapsulated beneath a metal seal which is then set in place with epoxy. Above the metal seal are two plastic bushings which are pressed into the annulus. To operate the device, an ultrathermic cutting rod is forced through the bushings and into the metal foil. Pure oxygen is then introduced into the metal foil and the resulting oxygen/activated iron foil superheats the end of the ultrathermic cutting rod, thus igniting the cutting rod. A diagram follows.

Normally, electricity is used to pre-heat the ultrathermic cutting rod. However, the use of electricity takes time for the rod to pre-heat. By using the "ignition cartridge," the operator does not need electricity and can pre-heat the rod almost instantly. This "ignition cartridge" is ideal for underwater rescues and for clandestine forced entry situations (i.e. hostage rescues). This system eliminates the need for costly explosive entry systems which can cause collateral damage.

## ShipMate

My client is naturally concerned about the shipping requirements. The supplier of the metal foil is currently declaring the metal foil as a pyrophoric solid. My client then uses the metal foil and manufactures the final product which, in operational tests, does not result in an article which presents any degree of danger during transportation. Further, the devices are sealed in a hermetically sealed foil pouch. Additionally, the foil pouch is sealed in an atmosphere of nitrogen.

Essentially, my question is this:

If a hazardous material is used in a manufactured article in such a way that the resulting finished product does not present a hazard in transportation and does not meet the criteria for a hazardous material, hazardous substance, hazardous waste or marine pollutant, as defined in Title 49, Code of Federal Regulations, subchapter C, would the finished article be regulated as a hazardous material?

Practical tests have shown that, in normal atmospheres, the temperature of the device increases approximately 10-15 °F over ambient when the metal seal is punctured. It is unlikely, even in enriched atmospheres, that the resulting temperature rise would cause this device to be classified as a Division 4.2 hazardous material.

Your written opinion is of great interest to my client as he would, naturally, like to transport the material. He currently has a number of purchase orders from various governmental law enforcement agencies, but he is unable to fulfill them because of the present issue which is interpretive in nature. We respectfully request your written opinion. If necessary, my client is prepared and willing to file any exemption or Competent Authority Approvals may be necessary to offer this device into transportation.

Your immediate review and response would be most appreciated. We look forward to your favorable response.

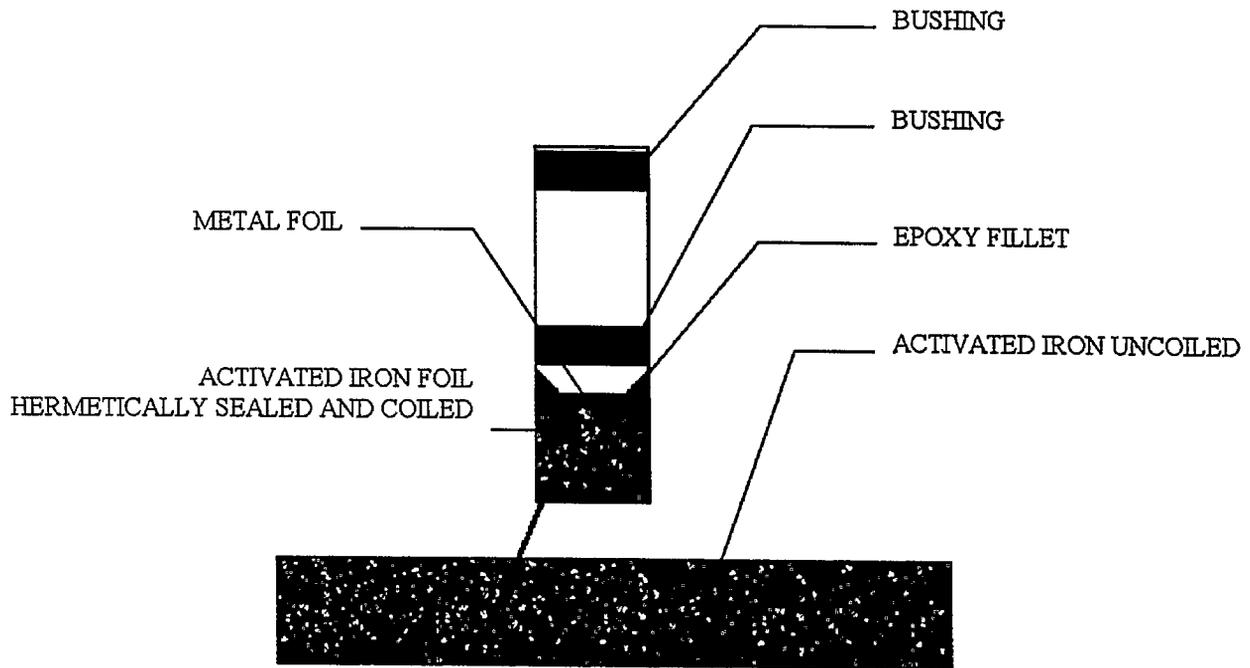
Respectfully,

Steven Charles Hunt  
ShipMate, Inc.

cc: Mr. Tom Joos

# ShipMate

Figure 1 Schematic of Igniter Cartridge (not to scale)



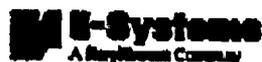
SENT BY: BROCO INC

9- 8-97 ; 8:56AM ;

9094833233

SHIPMATE INC:# 2

**Facsimile  
Cover Sheet**



Joint Operations Group  
5749 Briar Hill Road  
Lexington, KY 40516  
Tel 606.293.4236  
Fax 606.293.3550

Date: September 8, 1997	Message No.	
To: Tom Joss	Phone # 909-483-3222	Location/Dept.
Organization: Broco Inc.	Fax # 909-483-3233	
From: Bruce Lawrence	Subcontracts Admin.	

Message: Contents: Total Pages Transmitted 8 Including Cover Page

**DO NOT TRANSMIT CLASSIFIED INFORMATION OVER UNSECURED TELECOMMUNICATIONS SYSTEMS. OFFICIAL DOD TELECOMMUNICATIONS SYSTEMS ARE SUBJECT TO MONITORING AT ALL TIMES. USE OF DOD TELECOMMUNICATIONS SYSTEMS CONSTITUTES CONSENT TO MONITORING.**

Reference: Purchase Order 968119

Tom,

The following is information that will assist in completing the shipment of the igniters. It should also assist with the shipments to Japan.

Thanks,

Bruce Lawrence

- Notes:**
1. If message is not received completely or not received by intended party, please contact sender.
  2. No classified information shall be sent via facsimile.
  3. No technical data related to defense articles or services shall be transmitted out of the United States.
  4. No "Company Private" material shall be sent to an unattended machine and transmission to an attended machine requires telephone confirmation from intended recipient upon receipt.

SENT BY: BROCO INC

; 9- 8-97 ; 8:58AM ;

9094833233-

SHIPMATE INC: # 8

09/04/97 THU 12:29 FAX 703 784 5842

GROUNDS WEAPONS

006

ATTENDANCE LIST  
 WEAPON SYSTEM EXPLOSIVES SAFETY REVIEW BOARD  
 BROCO RAPID FIRE IGNITER  
 19 May 1997 1230 Session

BOARD MEMBERS

P. S. WRIGHT	NAVORDCEN	N713	(301)	743-6081
C. WAKEFIELD	NAVORDCEN	N7133.	(301)	743-6081
J. GERBER	NAVORDCEN	N7133	(301)	743-6081
C.W. POWERS	NAVORDCEN	N7134	(301)	743-6081
S.B. ANDREWS	NAVORDCEN	N7135	(301)	743-6081
J. WASEL	NAUSEA	03P3	(703)	602-8818
R. USKIEVICH	NAVFAC	151RU	(703)	325-7345
W. HAMMER	NSWC INDIAN HEAD	044D	DSN	354-4932
M. BROWN	NSWC DAHLGREN	G71	DSN	249-7734
W. BOVENSCHEN	NSWC CRANE	4022	DSN	482-1801
E. LUTHER	NAVSAFECEN	43	DSN	564-3342
A. STANTON	WENSTA EARLE	503	DSN	449-2857
DR. T. ENGLISH	COASTSYSTA	E055	DSN	436-5401

OTHERS

GYSGT DETRICK	MARINE CORPS		(703)	784-5396
J. BARNETTE	MARCORSYSCOM	PSE	(703)	784-4531
G. KLAUS	AOT		(703)	413-6262
M.E. CARO	AOT		(703)	413-6262

Enclosure (1)

SENT BY: BROCO INC

; 9- 8-97 ; 8:58AM ;

9094833233+

SHIPMATE INC:# 7

09/04/97 THU 10:28 FAX 703 784 5842

GROUND'S WEAPONS

008

Subj: WEAPON SYSTEM EXPLOSIVES SAFETY REVIEW BOARD MEETING ON  
THE BROCO RAPID FIRE IGNITER

Copy to:  
COMNAVSUBSYSCOM (SEA 00)  
NAVSURFWARCENDIV Dahlgren (C71 SAFEORD)  
NAVSURFWARCENDIV Indian Head (Code 041b)  
AOT (Attn: G. KLAUS)  
WSESRB Members (electronic copy)

SENT BY: BROCO INC

; 9- 8-97 ; 8:57AM ;

9094833233-

SHIPMATE INC;# 6

09/04/97 THU 16:28 FAX 703 784 8842

GROUNDS WEAPONS

001



DEPARTMENT OF THE NAVY  
WEAPON SYSTEM EXPLOSIVES SAFETY REVIEW BOARD  
NAVAL ORDNANCE CENTER  
FARMAGUET HALL BLDG D-123  
23 STRAUSS AVENUE  
INDIAN HEAD MD 20640-4558

8020  
Ser N7133/440  
11 JUL 97

From: Chairman, Weapon System Explosives Safety Review Board  
To: Commander, Marine Corps Systems Command  
(Attn: J. BARNETTE, Code PSE)

Subj: WEAPON SYSTEM EXPLOSIVES SAFETY REVIEW BOARD MEETING ON  
THE BROCO RAPID FIRE IGNITER

Encl: (1) Attendance List Weapon System Explosives Safety  
Review for The BROCO Rapid Fire Igniter  
(2) NAVSURFWARCEN IN ltr 8020HC Ser 041E/370 of 19 Jun 97

1. The Weapon System Explosives Safety Review Board (WSESRB) met 19 May 1997 to review the design of the BROCO Rapid Fire Igniter (BRFI). Attendees are listed in enclosure (1).
2. A presentation was given by a representative of Applied Ordnance Technology, Inc. The presentation highlighted the design and hazards associated with the BRFI.
3. Based upon the presentation, the WSESRB concurred with the storage of the BRFI aboard ship in accordance with the storage regulations for Hazard Division 4.2 "Spontaneously Combustible" materials in accordance with Naval Sea Systems Command Ordnance Publication (OP) 4. If the BRFI igniters are planned to go aboard submarines, they will need the approval of the Submarine Atmosphere Control Board.
4. Enclosure (2) provides a Navy reevaluation of the appropriate hazard class for the subject item. Based on this finding, the Marine Corps/Navy program manager for the subject item may elect to remove the existing hazard class 4.2 markings and store and transport Marine Corps/Navy stocks as non-regulated items that are exempt from DOT marking. Use of this DoD hazard classification does not eliminate the need for Submarine Atmosphere Control Board approval prior to transport aboard submarines.
5. The Board reiterates that, whichever hazard classification is used, the items must be stored in areas appropriate to the assigned and marked hazard class, i.e. the Marine Corps/Navy program manager may elect to use either the commercial hazard classification and mark, store or transport the items as Class Division 4.2 or use the DoD hazard classification and store or transport the items as unmarked, non-regulated items.

*Paul S. Wright*  
PAUL S. WRIGHT  
Acting

SENT BY: BROCO INC

; 9-8-97 ; 8:57AM ;

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SHIPMATE INC: # 5

09/04/97 THU 10:28 FAX 703 784 8842

GROUNDS WEAPONS

0003

6055  
PSE  
21 Jul 97

From: Head, Systems Engineering Branch  
To: Director, Ground Weapons Directorate (CWG)

Subj: SAFETY RELEASE FOR BROCO RAPID FIRE IGNITER

Encl: (1) WSESRB ltr 8020, Ser N7133/440 of 11 Jul 97  
(2) Naval Surface Warfare Center Indian Head Division ltr  
8020HC Ser 041B/370 of 19 Jun 97

1. We have conducted a system safety analysis for the subject igniter.
2. As a result of our analysis, and based upon the information in enclosures (1) and (2), we concur with a Safety Release for production for the Broco Rapid Fire Igniter.
2. The point of contact at this branch is Mr. J.W. Bannette, PSE-S, 784-4531.

*G. N. Georgeadis*  
G. N. GEORGEADIS

SENT BY: BROCO INC

9- 8-97 ; 8:56AM ;

8094833233→

SHIPMATE INC;# 4

09/04/97 THU 18:37 FAX 703 784 8842

GROUND WEAPONS

002

6 August 1997

MEMORANDUM FOR THE RECORD

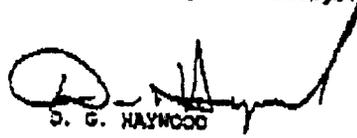
From: FM, Infantry Weapons

Subj: ASSAULT BREACHER TORCH KIT SYSTEM SAFETY

Ref: (a) COMHARCORSYSCOM ltr Ser FAE93.151 dtd 31 March 93  
(b) Mtg btwn N. Halloran/PA&E, T. Parker and J. Barnett/P&E, and L. Vanezka/P&E-CBG of 6 Jun 97

Encl: (1) Safety Assessment Report for the Assault Breacher Torch Kit, Ser 895-072 dtd 29 Aug 95  
(2) Program Support ltr Ser P&E dtd 21 Jul 97

1. The subject program was a FY 94 Marine Enhancement Program which received Milestone III approval per reference (a). System Safety Assessment was completed by P&E per enclosure (1) and W&ES&E review was conducted on the igniter portion of the system per enclosure (2).
2. Per reference (b), P&E concurrence with the safety of the subject system coupled with the reference (a) Milestone III decision authorizes FM, Infantry Weapons to field the subject system.
3. In accordance with the W&ES&E review of the igniter, FM, Infantry Weapons elects to remove the hazard class 4.2 and redesignate this item as non-regulated items for the purpose of DoD handling and storage.



D. G. HAYWOOD

Copy to:  
PA&E (N. Halloran)  
P&E (T. Parker)

SENT BY: BROCO INC

9- 8-97 ; 8:56AM ;

9094833233-

SHIPMATE INC:# 3

09/04/97 THU 18:27 FAX 703 784 5842

GROUND WEAPONS

001

# MARINE CORPS SYSTEMS COMMAND



Captain Jeffery B. Wilson  
 Reconnaissance Equipment Project Officer  
 703-784-2006 ext 2728  
 Fax 703-784-5842  
 DSN 278  
 wilsonj3@quantico.usmc.mil

To: JOHN BAKER

Date: 9/4/97

Agency: E SYSTEMS

# of Pages: 7

Fax: DSN 745 3055

Comments:

JOHN,  
 THE IGNITERS ARE CERTIFIED. THEY CAN BE SHIPPED. ENCLOSED FIND  
 THE INFO THAT BAKER MAY USE TO GET THE DOT CLASS  
 CHANGED. THIS WILL HELP W/JAPAN.

JEFF

Marine Corps Systems Command, (Attn CBG-1), 2033 Bennett Ave., Suite 315, Quantico, VA 22134-5010

SENT BY: BROCO INC

9-8-97 8:58AM

9094833233-

SHIPMATE INC:# 9

09/04/97 THU 18:29 FAX 703 784 3842

GROUNDS WEAPONS

007



DEPARTMENT OF THE NAVY  
 INDIAN HEAD DIVISION  
 NAVAL SURFACE WARFARE CENTER  
 101 STRAUSS AVE  
 INDIAN HEAD MD 20640-5033

#020HC

. Ser 041B/370

19 JUN 1997

From: Commander, Indian Head Division, Naval Surface Warfare Center  
 To: Commander, Marine Corps System Command, Attn: PSE, 3089 Roan Street, Quantico, VA 22134-5080  
 Subj: MILITARY STORAGE HAZARD CLASSIFICATION OF BROCO RAPID FIRE IGNITERS  
 Ref: (a) WSESRS Brief of 19 May 97  
 (b) PHONCCN btwn AOT G. Klaus/IHDIUNAVSURFWARCEN (Code 041B) E. Walsman of 3 Jun 97  
 (c) Mtg btwn NAVORDCEN (Code 66511) E. Klinghoffer/IHDIUNAVSURFWARCEN (Code 041B) E. Walsman of 6 Jun 97

1. Based on references (a) through (c), the military storage hazard classification assigned to the Broco Rapid Fire Igniters (BRFI) is non-regulated. This classification is based on the test reported by Garry Klaus, representative of MARCORSYSCOM, where no significant temperature rise resulted from exposure of the activated iron foil to air. This classification is valid only for the BRFI described in the Weapons Systems Explosive Safety Review Board (WSESRS) brief of 19 May 1997.

2. For further information or assistance regarding hazard classification, please contact Ed Walsman, Code 041B, on DSN 354-4383 or commercial (301) 743-4383.

I. BRUCE DALTON  
 By direction

Copy to:  
 NAVORDCEN (N713, N7112)

Encl (2)