



DEPARTMENT OF THE NAVY
PROGRAM EXECUTIVE OFFICE
MINE WARFARE
2531 JEFFERSON DAVIS HWY
ARLINGTON, VA 22242-5167

8027

IN REPLY REFER TO

Ser EOD-2/ 19

28 Mar 00

From: Program Executive Officer, Mine Warfare

Subj: MK 16 MOD 0 UBA AND MK 1 MOD 0 DRY SUIT PRESSURE VESSEL
DEPARTMENT OF DEFENSE CERTIFICATE OF EQUIVALENCY
AND DEPARTMENT OF TRANSPORTATION COMPETENT
AUTHORITY APPROVAL

Encl: (1) Certificate of Equivalency, NA-99-507 of 9 Aug 99
(2) Competent Authority Approval, CA-0001007 of 14 Jan 00

1. The MK 16 MOD 0 Underwater Breathing Apparatus (UBA) and MK 1 MOD 0 Dry Suit pressure vessels do not hold Department of Transportation (DOT) certification. Military air shipment, and commercial air, sea, and land shipment (CONUS and OCONUS) of fully charged pressure vessels require authorization from Department of Defense (DOD) and DOT cognizant authorities. To safely transport these pressure vessels fully charged with air, oxygen, or HeO₂, an approved container Certification of Equivalency (COE) and Competent Authority Approval (CAA) must be provided to satisfy DOD and DOT-directives.

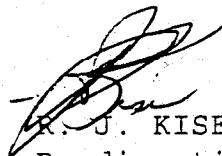
2. The COE, forwarded as enclosure (1), is approved by DOD and is a compilation of technical manufacturing and test data presented for the specific pressure vessels. Its intent is to demonstrate that the fully charged pressure vessel conforms to prescribed model regulations. It also provides appropriate packaging data as it applies to Motor Vehicle, Rail, and Military Air shipment.

3. The CAA, forwarded as enclosure (2), is approved by DOT via Military Traffic Management Command (MTMC) and provides the same pertinent data as the COE, but allows CONUS and OCONUS shipment by commercial aircraft and vessels of opportunity.

4. Copies of enclosures (1) and (2) shall be provided to local or regional shipping departments. These documents shall be included in all shipments of pressurized MK 16 MOD 0 UBA and MK 1 MOD 0 Dry Suit pressure vessels as appropriate.

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5. My point of contact is Ms. Shelley Diedrich, PMS-EOD-M, DSN
354-6837, (301) 744-6837, fax (301) 744-6973 or email:
diedrich@eodpoe2.navsea.navy.mil.


R. J. KISER
By direction

Distribution:

COMEODGRU ONE
COMEODGRU TWO
EODGRU ONE DET VSW MCM
EODMU TWO
EODMU THREE
EODMU SIX
EODMU SIX DET TWO
EODMU SIX DET FOUR
EODMU SIX DET SIX
EODMU SEVEN
EODMU EIGHT
EODMU EIGHT DET BAHRAIN
EODMU TEN
EODMU FIVE
EODMU ELEVEN
EODMU TWELVE
EODMU SEVENTEEN
EODTEU ONE
EODTEU TWO
SDV TEAM ONE (DV01)
SDV TEAM TWO (N4, N7)
NAVDIVESALVTRACEN
NAVXDIVINGU
NAVSCOLEOD
COMNAVSEASYSKOM (SEA 00C, PMS 340)
COMNAVSPECWARCOM (N4, N10)
NAVEODTECHDIV (Code 45, 60)
NAVSPECWARCEN (Code 521)



DEPARTMENT OF DEFENSE
 NAVAL SURFACE WARFARE CENTER
 INDIAN HEAD DIVISION DETACHMENT EARLE
 201 HIGHWAY 34 SOUTH
 COLTS NECK, NJ 07722-5023

9 August 1999

CERTIFICATE OF EQUIVALENCY

NA-99-507

PRESSURES VESSELS FOR MK 1 EOD DRYSUIT AND MK 16 UBA

1. **AUTHORITY.** 49 CFR 173.7(a) and NAVSUPINST 4030.50.
2. **COMMODITY.** A quantity of one high pressure air bottle containing 3,000 psig compressed air as part of the Mk 1 Explosives Ordnance Disposal (EOD) Drysuit. A quantity of at least 2 high pressure gas bottles containing 3,000 psig of either 100% compressed oxygen, 100% compressed air or a diluent of helium and oxygen mixtures (not to exceed 16% oxygen) as part of the Mk 16 Underwater Breathing Apparatus (UBA).

	<u>Mk 1 EOD Drysuit</u>
a. Proper Shipping Name:	Air, compressed
b. DOT/DOD Hazard Class/Div:	2.2
c. UN Serial Number:	UN1002

	<u>Mk 16 Underwater Breathing Apparatus (UBA)</u>		
	<u>Compressed Air</u> (100%)	<u>Compressed Oxygen</u> (100%)	<u>Helium-Oxygen</u> <u>Diluent</u>
a. Proper Shipping Name:	Air, compressed	Oxygen, compressed	Rare gases & oxygen mixtures
b. DOT/DOD Hazard Class/Div:	2.2	2.2 and 5.1	2.2
c. UN Serial Number:	UN1002	UN1072	UN1980

3. **PACKAGING DESCRIPTION.** The Mk 1 EOD Drysuit gas cylinder is filled to 3,000 psig, constructed of Inconel 718 (nickel-chromium), and is designed and tested in accordance with COMNAVSEASYSCOM Drawing 5762197. The Mk 16 UBA gas bottle is filled to 3,000 psig, constructed of Inconel 718 (nickel-chromium), and is designed and tested in accordance with COMNAVSEASYSCOM Drawing 6196009.

	<u>Mk 1 EOD Drysuit</u>
a. DOT Marking:	AIR, COMPRESSED UN1002 CCN NA-99-507
b. DOT Labels:	Non-Flammable Gas (2.2)

	<u>Mk 16 Underwater Breathing Apparatus (UBA)</u>		
	<u>Compressed Air</u> (100%)	<u>Compressed Oxygen</u> (100%)	<u>Helium-Oxygen</u> <u>Diluent</u>
a. DOT Marking:	AIR, COMPRESSED UN1002 CCN NA-99-507	OXYGEN, COMPRESSED UN1072 CCN NA-99-507	RARE GASES & OXYGEN MIXTURES UN1980 CCN NA-99-507
b. DOT Labels:	Non-Flammable Gas (2.2)	Non-Flammable Gas (2.2) Oxider (5.1)	Non-Flammable Gas (2.2)

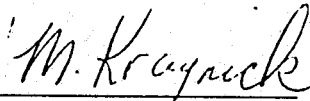
4. BASIS. This Certificate of Equivalency (COE) is based on the design and testing requirements of COMNAVSEASYS COM Drawing 5762197 for the Mk 1 EOD Drysuit Pressure Vessel and of COMNAVSEASYS COM Drawing 6196009 for the Mk 16 UBA Pressure Vessel.

5. SPECIAL TRANSPORTATION REQUIREMENTS.

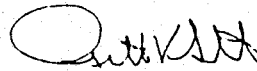
- a. Shipping papers shall be annotated, "Packaged in accordance with 49 CFR 173.7(a) by the authority of CCN-NA-99-507."
- b. A copy of this certificate shall accompany each shipment.
- c. All conveyances must have commodities packaged with an overpack using strong and rigid containers of metal or wood construction.
- d. Motor vehicle in accordance with 49 CFR 177 authorized.
- e. Rail in accordance with 49 CFR 174 authorized.
- f. Military air shipment in accordance with NAVSUP PUB 505/AFJMAN 24-204 authorized. The use of metal drums or airtight outer packages is prohibited.

6. CERTIFYING OFFICIAL

ENDORISING OFFICIAL



M. KRAYNICK
PHIST Technical Data Management
NSWC, IID, Detachment Earle



A. V. STANTON
PHIST Technical Data Management
NSWC, IID, Detachment Earle



U.S. Department
of Transportation

**Research and
Special Programs
Administration**

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

APPROVAL CA-0001007

ISSUED BY THE COMPETENT AUTHORITY OF THE UNITED STATES

1. **APPROVAL HOLDER:** The Department of the Army
Headquarters, Military Traffic
Management Command
5611 Columbia Pike
Falls Church, VA 22041-5050
2. **REGULATORY AUTHORITY:** Packing Instruction 200 of the
International Civil Aviation Organization's Technical
Instructions for the Safe Transportation of Dangerous
Goods by Air (ICAO TI) and Paragraph 22 of the General
Introduction to the International Maritime Dangerous
Goods (IMDG) Code.
3. **SYNOPSIS:** The materials described in paragraph 5a. may
be packaged and transported under the conditions
described below:
4. **BASIS:** This approval is based on the request dated
September 10, 1999 and additional information dated
January 10 and 11, 2000, submitted by Mr. David B. Terry,
on behalf of the Department of the Army, Department of
Defense of Washington, D.C. (DOD).
5. **PERIOD OF VALIDITY AND CONDITIONS OF APPROVAL:** This
approval does not provide relief from any requirements of
the Hazardous Materials Regulations, the IMDG Code or the
ICAO TI except as stated herein. This approval shall

remain valid until January 31, 2002 or until terminated by the Associate Administrator for Hazardous Materials Safety.

a. **Materials Authorized:**

1. **Commercial name:**

MK 1 Explosive Ordnance Disposal (EOD) Drysuit
CCN NA-99-507
MK 16 Underwater Breathing Apparatus (UBA)
CCN NA-99-507

2. **PROPER SHIPPING NAME, U.N. CLASS AND NUMBER:** MK 1
EOD Drysuit: Air, compressed, 2.2, UN1002.
MK 16 UBA: Air, compressed, UN1002
Oxygen, compressed, 2.2, UN1072.

b. **PACKAGING:** The MK 1 EOD Drysuit pressure vessel is designed and tested in accordance with COMNAVSEASYS COM Drawing 5762197 and is constructed of Inconel 718 (nickel-chromium). The MK 1 EOD Drysuit gas cylinder contains 3,000 psig of compressed air. The MK 16 UBA pressure vessel is designed and tested in accordance with COMNAVSEASYS COM Drawing 6196009 and is constructed of Inconel 718 (nickel-chromium). The MK 16 UBA gas cylinder contains 3,000 psig of either 100% compressed oxygen, 100% compressed air, or a diluent of helium and oxygen mixtures (not to exceed 16% oxygen).

6. **SPECIAL PROVISIONS:**

a. A current copy of this approval must accompany each shipment made under the authority of this approval.

b. The authority to grant the relief provided within this approval is limited to the extent that the United States government has authority over the transportation of the materials subject to this approval. Transportation in accordance with this approval outside the jurisdiction of the United States may require the approval of governments of countries where these materials are so transported.