U.S. Department
of Transportation
**Pipeline and Hazardous
Materials Safety
Administration**

1200 New Jersey Avenue, SE
Washington, DC 20590

August 16, 2023

Mike Kiamanesh
Waysmos USA
2032 Robert Browning St.
Austin, TX 78723

Reference No. 23-0032

Dear Mr. Kiamanesh:

This letter is in response to your March 24, 2023, letter requesting clarification of the Hazardous Materials Regulations (HMR; 49 CFR Parts 171-180) applicable to the transport of a liquid fire suppression agent that you manufacture. In your letter, you state that the material is not a hazardous material and you provide a safety data sheet as supporting documentation. Further, you state that you would like to transport the liquid material in a non-DOT specification cylinder instead of your current practice of using a 55-gallon steel drum. You note that internationally these cylinders are used to transport pressurized liquified gases such as other fire suppression agents. You state that this change in manner of transport is to facilitate filling of the associated fire suppression system upon delivery. Specifically, you request confirmation that this shipment is not subject to the requirements of the HMR and that the use of these cylinders is permitted.

In accordance with § 173.22, it is the shipper's responsibility to properly classify a hazardous material. If you have determined that the liquid fire suppression agent is not a hazardous material in accordance with applicable HMR criteria, then it is not subject to the HMR and may be transported in the packages you noted without restriction from the HMR.

I hope this information is helpful. Please contact us if we can be of further assistance.

Sincerely,

Dirk Der Kinderen
Chief, Standards Development Branch
Standards and Rulemaking Division

Casey

23-0032

From: INFOCNTR (PHMSA)
To: Hazmat Interps
Subject: FW: Request for interpretation - Using liquid in gas cylinder
Date: Friday, March 31, 2023 10:43:15 AM
Attachments: 926L-6mm cylinder.pdf
SDS-FK-5-1-12-US-Version-4.1-2021-05-07.doc (5).pdf

Hello,

Please see attached and below request for letter of interpretation.

Also here is the mailing address:
Michael Kiamanesh
2032 Robert Browning St, Austin, TX 78723
737-999-3367

Thanks,
Jonathon, HMIC

From: Mike Kiamanesh <mike@waysmosusa.com>
Sent: Friday, March 24, 2023 2:03 PM
To: INFOCNTR (PHMSA) <INFOCNTR.INFOCNTR@dot.gov>
Subject: Request for interpretation - Using liquid in gas cylinder

Hi DOT,

I am interested in importing a fire suppression agent that we manufacture called FK-5-1-12 (SDS attached), in non-dot approved gas cylinders (drawing of cylinder attached).

The molecule FK-5-1-12 as you can see on the SDS is not considered hazmat, right now the most common way of transporting it is as general cargo in 55 gallon steel drums.

Why we want to use the cylinders is because our customers want a larger bulk packaging where they do not need to switch containers (drums) as much when filling their fire suppression system cylinders. For reference the drums each hold about 250kg of the FK-5-1-12 while the cylinder we want to use holds 1000kgs.

These cylinders are used internationally (not in USA) to bulk transport pressurized liquified gases, such as another fire suppression agent HFC-227ea. We just want to start using them in the USA for moving this non pressurized non hazmat bulk liquid fire suppression agent.

Let me know anything else you need from me. I am available anytime for a call as well.

Regards
Mike
737-999-3367

Safety Data Sheet

Section 1 – Chemical Product and Company Identification

Product Name	FK-5-1-12
Chemical Name	1,1,1,2,2,4,5,5,5-Nonafluoro-4-(trifluoromethyl)-3-pentanone
Synonym	FLUOROKETONE, Perfluoro(2-Methyl-3-Pentanone), NOVEC1230™
Product Use	Fire extinguishing agent
Manufacturer	Shanghai Waysmos Fine Chemical Co., Ltd.
Address	388 Liangle Road, Laogang, Pudong New Area, Shanghai, China
Email	sales@waysmos.com
Telephone	+86-571-85069383
Fax	+86-571-85069385

Section 2 –Hazard Identification

Hazard classification	This material is not considered hazardous by the OSHA Hazard Communication Standard (29 CFR 1910.1200)
Hazard pictograms	
Signal word	Warning
Hazard statements	H412: Harmful to aquatic life with long lasting effects.
Precautionary statements	P261: Avoid breathing vapours. P273: Avoid release to the environment. P280: Wear protective gloves/protective clothing.
Other Hazard	Overheating and over pressurizing may cause gas release or violent container bursting.

Section 3 – Composition/Information on Ingredients

Ingredient name	CAS No.	%(weight)
1,1,1,2,2,4,5,5,5,-Nonafluoro-4-(trifluoromethyl)-3-pentanone	756-13-8	≥99. 0

Section 4 – First Aid Measures

Inhalation	Remove victim to fresh air and keep at rest in a position comfortable for breathing. If not breathing, if breathing is irregular or if respiratory arrest occurs, provide artificial respiration or oxygen by trained personnel. If unconscious, place in recovery position and get medical attention immediately
Skin	Remove and isolate contaminated clothing and shoes. Wash immediately with plenty of soap and water. Get medical attention if frostbitten by liquid or if irritation persists
Eyes	Immediately flush with large amounts of water for at least 15 minutes Get medical attention if irritation occurs
Ingestion	DO NOT induce vomiting unless instructed to do so by a physician. Get medical attention immediately if symptoms develop.
Note to physician	Immediate medical attention is not required When symptoms persist or in all cases of doubt seek medical advice

Section 5 – Fire Fighting Measures

Extinguishing media	Product is a fire extinguishing media. Use media appropriate for surrounding material
Special hazards arising from the substance or mixture	Thermal decomposition may cause toxic products Containers may explode in heat of fire.
Special protective equipment for firefighters	Wear self-contained breathing apparatus with a full face-piece operated in positive pressure mode and chemical-protective clothing. Prevent fire extinguishing water from contaminating surface water or the ground water system

Section 6 – Accidental Release Measures

Personal precautions, protective equipment and emergency procedures	Refer to section 8 of SDS for personal protection details. Wear mask and appropriate protective clothing for daily operation. Prevent skin and eye contact. Keep unprotected persons away. If outside do not approach from downwind.
Environmental precautions	Do not discharge into drains/surface waters/groundwater
Methods and material for containment and cleaning up	Evacuate area. Keep upwind. Stop leak if without risk. Ventilate area especially low places remove open flames and heating elements. Disperse it with floor level forced air
Reference to other SECTIONs	See SECTION 7 for information on safe handling See SECTION 8 for information on personal protection equipment See SECTION 13 for information on disposal

Section 7 – Handling and Storage

Handling

Avoid direct contact with the substance. Wash thoroughly after handling. Ensure there is sufficient ventilation of the area. Do not handle in a confined space. Avoid the formation or spread of mists in the air. Contents may be under pressure, open carefully. Do not breathe thermal decomposition products. For industrial or professional use only. Do not eat, drink or smoke when using this product. Do not drag, slide or roll containers. Do not drop containers or permit them to strike against each other. Never apply flame or localized heat directly to any part of the container.

Storage

Store in dry, cool, well ventilated area. Keep container tightly closed. Keep out of direct sunlight and ultraviolet, keep away from incompatible materials, water, keep away from sources of heat or ignition. Containers should be properly stored and secured to prevent falling or being knocked over.

Section 8 –Exposure Controls/Personal Production

8.1 Control parameters

Occupational exposure limit values	150 ppm, 8 hr TWA

8.2 Exposure controls

Appropriate engineering controls	Use only with adequate ventilation. Use process enclosures, local exhaust ventilation or other engineering controls to keep worker exposure to airborne contaminants below any recommended or statutory limits
Personal protective equipment	
Respiratory Protection	Self-contained breathing apparatus or full facepiece supplied-air respirator must be available in case of emergency.
Skin Protection	Wear protective gloves/clothing to prevent contact
Eye Protection	Safety glasses/chemical splash goggles
Environmental exposure controls	Do not empty into drains

Section 9 – Physical and Chemical Properties

9.1 Information on basic physical and chemical properties

Appearance	Liquid
Color	colorless
Odour	Low odor
pH	Not available
Melting point	-108°C
Boiling point	49 °C
Flash point	Not available
Evaporation rate	> 1(BUOAC = 1.0)
Flammability (solid, gas)	Not flammable
Upper/lower flammability or explosive limits	Not available
Vapour pressure	40.4 Kpa (25°C)
Specific gravity（H_2O=1	1.6 g/cm^3
Solubility(ies)	Not available
Partition coefficient: n-octanol/water	log Kow = 2.11

Auto-ignition temperature	Not available
Viscosity	0.6 mPa.s (25°C)

Section 10 – Stability and Reactivity

Reactivity	Stable under recommended storage and handling conditions (see SECTION 7, handling and storage)
Chemical stability	Stable under normal conditions of use
Possibility of hazardous reactions	No known hazardous reactions
Conditions to avoid	Keep away from heat and ignition sources. Protect from sunlight
Incompatible materials	Strong oxidizing materials, Strong acids and bases
Hazardous decomposition products	Thermal decomposition can lead to release of irritating or toxic gases/vapors: carbon oxides, hydrogen fluoride

Section 11 – Toxicological Information

11.1 Information on toxicological effects

Acute Toxicity

Ingredient name	LD50 Oral(rat)	LD50 Dermal (rat)	LC50 Inhalation (rat)
1,1,1,2,2,4,5,5,5-Nonafluoro-4-(trifluoromethyl)-3-pentanone	> 2,000 mg/kg	> 2,000 mg/kg	>1,227 mg/l/4h (>10% by volume)

Skin corrosion/irritation	No information available
Serious eye damage/irritation	No information available
Respiratory or skin sensitization	No information available
Germ cell mutagenicity	No information available
Reproductive toxicity	No information available
STOT-single exposure	No information available
STOT-repeated exposure	No information available
Aspiration hazard	No information available
Carcinogenicity	Not listed as a carcinogen by NTP, IARC, or OSHA

Section 12 – Ecological Information

Toxicity (Ecotoxicity Fish, LC_{50})	>1200 mg/l (Zebra Fish, 96h)
Degradability	Atmospheric lifetime is approximately 0.014 years(5 days)
Bioaccumulation/ Accumulation	No data available
Mobility in Environmental Media	Not available
Other adverse effects	Ozone Depletion Potential (CFC 11 = 1.0): 0.00 Global Warming Potential (CO_2 = 1.0): 1.00

Section 13 –Disposal Considerations

Waste Disposal Method

Disposal must be made according to local and national regulations. Empty containers should be taken for local recycling, recovery or waste disposal.

Section 14—Transport Information

ITEM	LAND ☐ EU: ADR/RID ☐ US: DOT	SEA IMDG	AIR ICAO / IATA
UN-Number	General cargo	General cargo	General cargo
Packaging Group			

Special precautions for user None determined

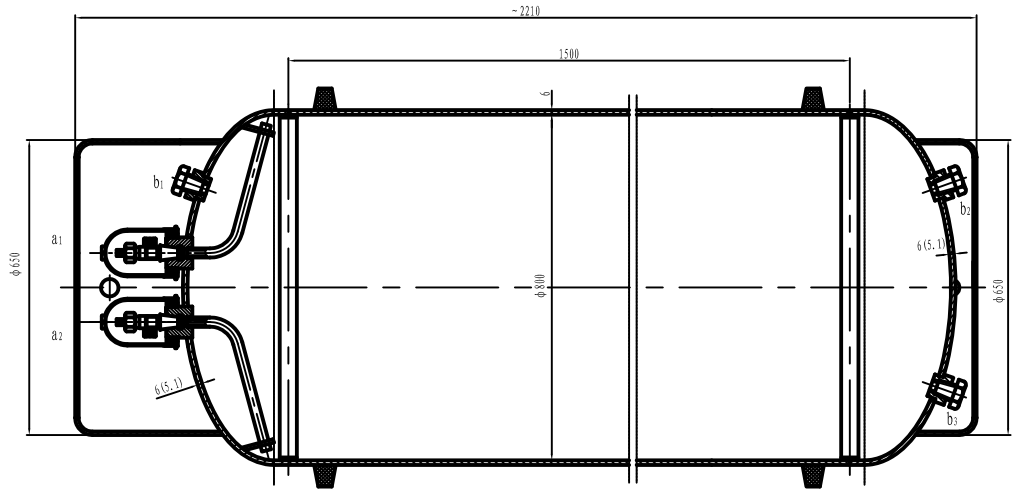
Section 15—Regulatory Information

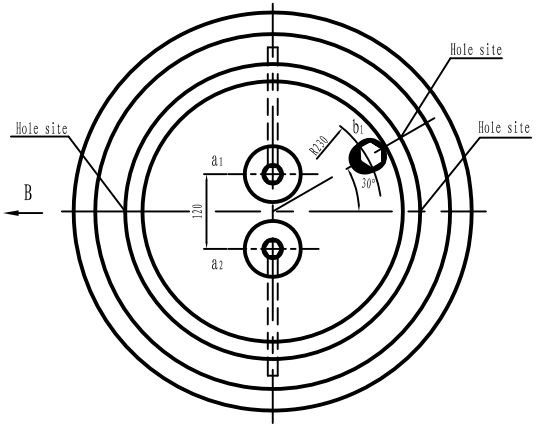
15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture
Listed in international inventories:

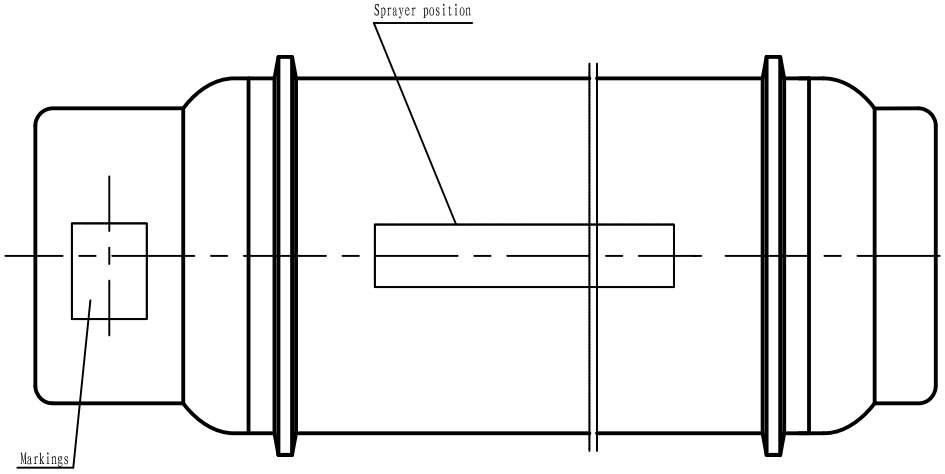
Ingredient name	TSCA	DSL	NDSL	ELINCS	ENCS	CHINA	KECL	PICCS	AICS
1,1,1,2,2,4,5,5,5-Nonafluoro-4-(trifluoromethyl)-3-pentanone	YES	YES	NDA	YES	YES	YES	YES	YES	YES

Section 16 – Other Information

In accordance with good practices of personal cleanliness and hygiene handle with the care and avoid unnecessary contact with this product.
This information is being supplied to you under OSHA Hazard Communication Standard 29 CFR 1910.1200 and is offered in good faith as typical values and not as a product specification. The information contained herein is based on the data available to us and is believed to be true and accurate.
No warranty expressed or implied regarding the accuracy of this data. The hazards connected with the use of the material or the results to be obtained from the use thereof are made. Shanghai Waysmos Fine Chemical Co., Ltd. assumes no responsibility for damage or injury from the use of the product described herein







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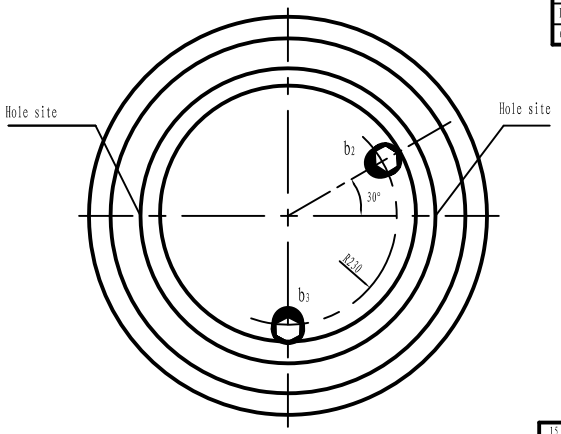

Technical properties

Nominal working pressure MPa	2.0	Weld joint efficiency φ	0.9
Hydraulic test pressure MPa	3.0	Capacity L	926
air tightness test pressure MPa	2.0	Design wall thickness mm	5.1
Designed tempreature ℃	60	Bottle valve thread	PZ27.8
operating temperature range ℃	-40~60		

No.	Drawing No.	Name	Qty	Material	Net Weight	Gross Weight	Remark
15		Valve protection cup	2	Polycarbonate			
14		Valve	2	Assembly			
13		Neckrings	2	Polycarbonate			
12	ZJK.V926-10	Seat	2	20			
11	ZJK.V926-09	Left Head	1	HP345			
10	ZJK.V926-08	Big collar	1	Q235-A			
9	ZJK.V926-07	dip tube	2	20			
8	ZJK.V926-06	Rings	2	Q235A			
7	ZJK.V926-05	Body of cylinder	1	HP345			
6	ZJK.V926-04	Pad	2	Q235-A			
5		Shock proof ring	2	Rubber			
4	ZJK.V926-03	Right Head	1	HP345			
3	ZJK.V926-02	Small collar	1	Q235-A			
2		Fusible alloy stopper device PZ27.8	3	Assembly			
1	ZJK.V926-01	Plug seat	3	20			

Assembling Drawing

Zhejiang Kin-shine Technology Co.,Ltd

Designed by		Standardization		Qty	Weight(kg)	Scale
Proofread by		Approval			300	/
Audited by		Date		Sheet 1 of 1		

I type steel welding gas cylinder

HJWⅡ800-926-2.0 T

ZJK.V926-00