HMIS CODE	
Health	1
Flammability	0
Reactivity	1
Personal Protection	X

MATERIAL SAFETY DATA SHEET

1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

Trade Name : **LUKE 5112**
Product Name : LK 5112 Fire Extinguishing Agent
Intended Use : Streaming and Flooding Fire Protection

Manufacturer/Supplier Name and Address

Company's Name : LUKE ALEXANDER LLC
Address : 5 Centerpointe Dr. Suite 400
Portland, OR 97035

Date of Issue : November 18, 2016
Information Contact : 1-503- 204-0371

Emergency Contact : 1-800-424-9300 *(CHEMTREC within USA and Canada)*
1-703-527-3887 *(CHEMTREC outside USA and Canada)*

Listings and Approvals :

2. COMPOSITION / INFORMATION ON INGREDIENTS

Chemical Name	CAS #	% by wt	OSHA TWA	ACGIH TWA
1,1,1,2,2,4,5,5,5-Nonafluoro-4-(trifluoromethyl)-3-pentanone	756-13-8	>99.5%	150 ppm	150 ppm

3. HAZARDS IDENTIFICATION

3.1 EMERGENCY OVERVIEW

Physical Form : Liquid
Odor : Low odor
Color : Colorless

3.2 POTENTIAL HEALTH EFFECT

Acute Exposure

Eye Contact : Contact with the eyes during product use is not expected to result in significant irritation
Skin Contact : Contact with the skin during product use is not expected to result in significant

irritation

Inhalation : Prolonged or repeated exposure, above recommended guidelines, may be absorbed following inhalation and cause target organ effects

Ingestion : No health effects are expected

Chronic Exposure : Prolonged or repeated exposure, above recommended guidelines may cause liver effects. Signs or symptoms may include loss of appetite, weight loss, fatigue, weakness, abdominal tenderness, and jaundice.

3.3 POTENTIAL ENVIRONMENTAL EFFECT

This substance has a high Henry's Law constant and therefore will be primarily found in the atmosphere where photolysis will be the dominant reaction pathway. Degradation products from photolysis reaction are HF, CO2 and trifluoroacetic acid (TFA). The chemical has zero ozone depletion, an atmospheric lifetime of approximately five days and a global warming potential of one.

4. FIRST AID MEASURES

Eye Contact : Flush eyes with plenty of water. If sign or symptom persists, get medical attention

Skin Contact : Wash affected area with soap and water. If sign or symptom persists, get medical attention

Inhalation : Move the person to get fresh air. If sign or symptom persists, get medical attention

Ingestion : Do not induce vomiting. Give the person two glasses of water. Never give anything by mouth to an unconscious person. If sign or symptom persists, get medical attention

5. FIRE FIGHTING MEASURES

This is a product of fire extinguishing agent. Fire fighters should wear full protective equipment (Bunker Gear) and self-contained breathing apparatus (SCBA). See Section 10 (STABILITY AND REACTIVITY) for hazardous combustion and thermal decomposition information.

6. ACCIDENTAL RELEASE MEASURES

6.1 PERSONAL PRECAUTIONS, PROTECTIVE EQUIPMENT AND EMERGENCY PROCEDURE

Ventilate the area with fresh air. For large spill, or spills in confined spaces, provide mechanical ventilation to disperse or exhaust vapors, in accordance with good industrial hygiene practice. Warning! A motor could be an ignition source and could cause flammable gases or vapors in the spill area to burn or explode.
Wear full protective clothing and use appropriate personal protective equipment including self-contained breathing apparatus when entering the affected areas.

6.2 ENVIRONMENTAL PRECAUTIONS

For larger spills, cover drains and build dikes to prevent entry into sewer systems or bodies of water. Place in a metal container approved for transportation by appropriate authorities. Dispose of collected material as soon as possible.

6.3 CLEAN-UP METHOD

Observe precautions from other sections. Contain spill. Working from around the edges of the spill inward, cover with bentonite, vermiculite, or commercially available inorganic absorbent material. Mix in sufficient absorbent until it appears dry. Collect as much of the spilled material as possible. Clean up residue. Seal the container.

In the event of a release of this material, the user should determine if the release qualifies as reportable according to local, state, and federal regulations.

7. HANDLING AND STORAGE

7.1 HANDLING

For industrial or professional use only. Contents may be under pressure, open carefully. Avoid eye contact with vapors, mists, or spray. Avoid breathing of vapors, mists or spray. Contents may be under pressure, open carefully. See incompatibility information in Heading 10 STABILITY AND REACTIVITY

7.2 STORAGE

Keep container in well-ventilated area. See incompatibility information in Heading 10 STABILITY AND REACTIVITY. Store in original container. Keep tightly closed until used. There is minimal danger to the environment from a storage release. See Heading 12 ECOLOGICAL INFORMATION

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

8.1 EXPOSURE LIMIT

Chemical Name	TWA Limit
1,1,1,2,2,4,5,5,5-Nonafluoro-4-(trifluoromethyl)-3-pentanone	150 ppm

8.2 EXPOSURE CONTROL

8.2.1 Respiratory Protection

Avoid breathing of vapors, mists or spray
Under normal use conditions, airborne concentrations are not expected to be significant enough to require respiratory protection
If thermal decomposition occurs, wear supplied air respiratory protection (e.g. NIOSH approved repirators, OSHA regulations)

8.2.2 Skin Protection

While the use of gloves is not mandatory, it is recommended to use Butyl Rubber gloves

8.2.3 Eye Protection

While the use of google is not mandatory, it is recommended to use it

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance	: Clear, colorless liquid
Odor	: Odorless
Molecular weight	: 316.04
Boiling point at 760 mm Hg	: 120.2°F
Freezing point	: -162.4°F (-108°C)
Flash point	: Not Applicable
pH	: Not Applicable
Specific gravity (Water = 1)	: 1.6
Solubility in water	: NIL
Evaporation rate (Butyl Acetate = 1)	: > 1
Vapor density (Air = 1)	: 11.6
Viscosity	: 0.6 cP at 77°F (25°C)
Auto-ignition temperature	: Not Applicable

10. STABILITY AND REACTIVITY

Stability	: Stable
Conditions to avoid	: Avoid direct sunlight and ultraviolet light
Materials to avoid	: Strong bases, amines or alcohols

Hazardous Polymerization : Will NOT Occur

Hazardous Decomposition : Normally stable

Combustion or decomposition products include carbon monoxide, carbon dioxide and hydrogen fluoride

11. TOXICOLOGICAL INFORMATION

Toxicological Data:

Please contact the address listed on the first page of the MSDS for toxicological Information on this material and/or its components.

12. ECOLOGICAL INFORMATION

12.1 Ecotoxicity

Not determined

12.2 Degradability

Photolytic half-life is 3 to 5 days. Degradation product from photolytic is trifluoroacetic acid

12.1 Bioaccumulative potential

Not determined

12.2 Others

Ozone Depletion Potential : None
Global Warming Potential : 1

13. DISPOSAL CONSIDERATIONS

Incinerate in industrial or commercial facility. Combustion products would include HF. Facility must be capable of handling halogenated materials.
As a disposal alternative, dispose of waste product in a facility permitted to accept chemical waste. Reclaim if feasible. For information of product return, contact your distributor.

It is strongly recommended to consult and follow the local applicable regulations/authorities for disposal

HMIS CODE	
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Flammability	0
Reactivity	1
Personal Protection	X

MATERIAL SAFETY DATA SHEET

14. TRANSPORTATION INFORMATION

As the unpressurized agent, LUKE 5112, is not a compressed or liquefied gas, non-flammable and low in toxicity. Thus, it is an unregulated material and has no UN designation.

When shipping pressurized as a Fire Extinguishing Unit, the UN number as follows:-

U.S. DOT

PROPER SHIPPING NAME	:	Fire Extinguisher with compressed or liquefied gas
HAZARD CLASS	:	2.2 Non-flammable gas
UN NUMBER	:	UN1044

AIR TRANSPORT - ICAO OR IATA

PROPER SHIPPING NAME	:	Fire Extinguisher with compressed or liquefied gas
HAZARD CLASS	:	2.2 Non-flammable gas
UN NUMBER	:	UN1044

WATER – IMDG

PROPER SHIPPING NAME	:	Fire Extinguisher with compressed or liquefied gas
HAZARD CLASS	:	2.2 Non-flammable gas
UN NUMBER	:	UN1044

15. REGULATORY INFORMATION

This product is not classified as dangerous according to Directive 1999/45/EC
There are no known restrictions of this product

16. OTHER INFORMATION

NFPA HAZARD CLASSIFICATION

Heath	: 3	Reactivity	: 1
Flammability	: 0	Special Hazard	: None

National Fire Protection Association (NFPA) hazard ratings are designed for use by emergency response

personnel to address the hazards that are presented by short-term, acute exposure to materials under conditions of fire, spill or similar emergencies. Hazard ratings are primarily based on the inherent physical and toxic properties of the material but also include the toxic properties of combustion or decomposition products that are known to be generated in significant quantities.

HMIS HAZARD CLASSIFICATION

Heath	: 1	Reactivity	: 1
Flammability	: 0	PPE	: X *(Section 8)*

Hazardous Material Identification System (HMIS) hazard ratings are designed to inform employees of chemical hazard in the workplace. The provided ratings are based on the inherent properties of the material under expected conditions of normal use and are not intended for use in emergency situations. HMIS ratings are to be used with a fully implemented HMIS program.

NFPA/HMIS HAZARD DEFINITION

4 - Severe Hazard
3 - Serious Hazard
2 - Moderate Hazard
1 - Slight Hazard
0 - Minimal Hazard

The data in this Material Safety Data Sheet relates only to the specific material designated herein. It does not relate to use in combination with any other material or in any process.

To the best of our knowledge, the information contained herein is accurate. However, the above named manufacturer, supplier or any of its subsidiaries assumes any liability whatsoever for the accuracy or completeness of the information contained herein. Final determination of suitability of any material is the sole responsibility of the user. All materials may present unknown hazards and should be used with caution. Although certain hazards are described herein, we cannot guarantee that these are the only hazards that exist.