Indanedione Reagent MSDS

Effective Date: July 18, 2013
24 Hour Emergency Contact:
ChemTel: (800)255-3924
www.pioneerforensics.com

1. PRODUCT AND COMPANY IDENTIFICATION

Product:	**Indanedione Reagent, HFE-7100 Formula**
Product Number(s):	PF085
CAS#:	Mixture
Synonyms:	Mixture
Manufacturer:	Pioneer Forensics, LLC 804 E. Eisenhauer Blvd. Loveland, CO 80537 Ph: (970) 292-8487
Emergency Number:	(800) 255-3924 (CHEM-TEL)
Customer Service:	(970) 292-8487

2. HAZARDS IDENTIFICATION

Emergency Overview: MAY BE HARMFUL IF INHALED, SWALLOWED, OR ABSORBED THROUGH SKIN. CAUSES IRRITATION TO SKIN, EYES, AND RESPIRATORY TRACT.

Safety Ratings:

Health: 1, Slight	Reactivity: 0, None
Flammability: 0, None	Contact: 1, Slight

OSHA Regulatory Status: This product is not considered a "Hazardous Chemical" as defined by the OSHA Hazard Communication Standard, 29 CFR 1910.1200.

Potential Acute Health Effects:

Routes of Exposure: Inhalation, ingestion, skin contact, eye contact

Inhalation: May be harmful if thermal decomposition occurs. May cause dizziness and respiratory tract irritation.

Ingestion: May be harmful if swallowed.

Skin Contact: May cause skin irritation.

Eye Contact: May cause serious eye damage.

Target Organs: Skin, central nervous system, urinary system, blood, liver, reproductive system, eyes, cardiovascular system, and respiratory system

Chronic Health Effects: Ingestion or absorption of this product into the body can cause permanent nervous system or brain damage.

Potential Environmental Effects: This product may undergo partial biodegradation in the environment. It will likely diffuse rapidly into the atmosphere if exposed to the environment. However, product may cause long term adverse environmental effects. Take measures to prevent environmental exposure.

3. COMPOSITION AND INFORMATION ON INGREDIENTS

Components	CAS#	Chemical Formula	Formula Weight	Hazardous	% by Weight
Indan-1,2-dione	16214-27-0	$C_9H_6O_2$	146.14	No	≈ 0.2
Ethyl Acetate	141-78-6	$C_4H_8O_2$	88.11	Yes	≈ 7
Methyl Nonafluorobutyl Ether	163702-07-6	$C_5H_3F_9O$	250.06	No	20-80
Methyl Nonafluoroisobutyl Ether	163702-08-7	$C_5H_3F_9O$	250.06	No	20-80

4. FIRST AID MEASURES

First Aid Procedures:

Inhalation: Remove to fresh air. If breathing is difficult, administer oxygen. If the victim is not breathing, provide artificial respiration. Get medical attention if symptoms persist.

Ingestion: Do not induce vomiting unless directed to do so by medical personnel. If vomiting occurs, keep head low so that vomit does not enter lungs. Never give anything by mouth to an unconscious person.

Skin Contact: Wash affected area with soap and plenty of water for at least 15 minutes. Remove contaminated clothing and shoes. Wash clothing before reuse. Get medical attention if symptoms occur.

Eye Contact: Check for and remove contact lenses. Immediately flush eyes with gentle but large stream of water for at least 15 minutes, lifting lower and upper eyelids occasionally. Get medical attention if symptoms persist.

General Advice: In the case of accident or if you feel unwell, seek medical advice immediately (show the label where possible). Ensure that medical personnel are aware of the material(s) involved, and take precautions to protect themselves. Show this safety data sheet to the doctor in attendance.

Notes to Physician: Treat symptomatically. Symptoms may be delayed.

5. FIRE FIGHTING MEASURES

NFPA Ratings: Health: 3 Flammability: 0 Reactivity: 0

Flammable Properties: May be combustible at high temperatures.

Flash Point: No information found

Auto-ignition Temp: No information found

Flammable Limits in Air (% by volume): Lower Explosion Limit: No information found
Upper Explosion Limit No information found

Suitable Extinguishing Media: Water spray, dry powder, alcohol resistant foam, carbon dioxide

Unsuitable Extinguishing Media: Do not use a solid (straight) water stream as it may scatter and spread fire.

Hazardous Combustion Products:	Carbon oxides, hydrofluoric acid, perfluoroisobutylene
Specific Hazards:	Extreme heat conditions may result in thermal decomposition into Hydrofluoric acid (HF) and Perfluoroisobutylene (PFIB), which are highly toxic.
Special Protective Equipment For Firefighters:	As in any fire, wear MSHA/NIOSH approved (or equivalent) self-contained positive pressure or pressure-demand breathing apparatus and full protective gear.
Specific Methods:	Use water spray to cool unopened containers. Move containers from fire area if you can do so without risk. In the event of fire and/or explosion, do not breathe fumes.

6. ACCIDENTAL RELEASE MEASURES

Personal Precautions:	Ventilate area of leak or spill. Isolate hazard area and keep unnecessary and unprotected personnel away from the area of the leak or spill. Keep upwind. Keep out of low areas. Wear appropriate personal protective equipment as specified in the Exposure Control and Personal Protection Section 8. Avoid contact with eyes, skin, and clothing. Pay attention to flashback.
Environmental Precautions:	Prevent further leakage or spillage if safe to do so. Do not contaminate water. Avoid discharge into drains, water courses or onto the ground. In case of large spill, dike if needed.
Methods for Containment:	Stop the flow of material, if this is without risk. Prevent entry into waterways, sewer, basements or confined areas. Dike the spilled material, where this is possible. In case of large spill, water spray or vapor suppressing foam may be used to reduce vapors.
Methods for Cleaning Up:	Absorb spill with an inert material (e.g. vermiculite, dry sand, earth, cloth, fleece), and place in a suitable container for reclamation or disposal. Clean contaminated surface thoroughly. Never return spills in original containers for re-use. Clean up in accordance with all applicable regulations.

7. HANDLING AND STORAGE

Handling:	Do not handle or open near sources of extreme heat (>150°C). Wear personal protective equipment (see section 8). Use only in well-ventilated areas. Provide sufficient air exchange and/or exhaust in work rooms. Avoid contact with skin, eyes and clothing. Do not breathe vapors or spray mist. Do not ingest. When using, do not smoke. Keep away from incompatible materials. Handle in accordance with good industrial hygiene and safety practice. Wash thoroughly after handling. Containers of this material may be hazardous when empty since they retain product residues (vapors, liquids). Observe all warnings and precautions listed for the product.
Storage:	Store in a cool, dry, ventilated area. Store in a segregated and approved area away from flame, heat, acids, strong bases, oxidizers, moisture, and incompatible materials. Store in original container and out of excessive light. Keep containers tightly closed and upright. Keep away from food, drink and animal feedingstuffs. Keep out of the reach of children. Comply with all national, state, and local codes pertaining to the storage, handling, dispensing, and disposal of flammable liquids.

8. EXPOSURE CONTROL AND PERSONAL PROTECTION

Exposure Limits:

Product:	No exposure limits established for this product.			
Components:	Indan-1,2-dione:	No information found		
	Ethyl acetate:	OSHA: OSHA/ACGIH:	TWA: PEL:	400 ppm 1400 mg/m^3
	Methyl nonafluorobutyl ether:	AHIA:	TWA:	750 ppm
	Methyl nonafluoroisobutyl ether:	AHIA:	TWA:	750 ppm

Engineering Controls: Ensure adequate ventilation. Ventilation rates should be matched to conditions. If applicable, use process enclosures, local exhaust ventilation, or other engineering controls to maintain airborne levels below recommended exposure limits. If exposure limits have not been established, maintain airborne levels to an acceptable level.

Personal Protective Equipment:

Eye/Face Protection: Wear goggles or safety glasses with side shields and a face shield.

Skin Protection: Wear appropriate chemical resistant clothing (with long sleeves) and appropriate chemical resistant gloves.

Respiratory Protection: Use a positive-pressure air-supplied respirator if there is any potential for an uncontrolled release, exposure levels are not known, or any other circumstances where air-purifying respirators may not provide adequate protection.

General Hygiene Considerations: Avoid contact with skin, eyes and clothing. When using, do not eat, drink or smoke. Always observe good personal hygiene measures, such as washing after handling the material and before eating, drinking, and/or smoking. Routinely wash work clothing and protective equipment to remove contaminants. Provide eyewash station and safety shower.

9. PHYSICAL AND CHEMICAL PROPERTIES

Physical State:	Liquid
Appearance:	Transparent
Color:	Brownish-yellow
Odor:	Characteristic, ethereal
Molecular Formula:	Mixture
Molecular Weight:	Mixture
pH:	No information found
Specific Gravity:	1.50 (estimated)
Freezing/Melting Point:	-135° C (-211° F) (estimated)
Boiling Point:	61° C (142° F) (estimated)
Flash Point:	No information found
Auto Ignition Temperature:	405° C (761° F) (estimated)
Flammable Limits in Air (% by Volume):	
Upper:	No information found
Lower:	No information found
Solubility:	Not soluble in water (<12 ppm)
Vapor Pressure:	26.9 kPa at 25°C (estimated)

Vapor Density:	8.6 (estimated)
Percent Volatile:	100% (estimated)
Odor threshold (ppm):	No information found
Evaporation Rate:	49 BuAc (estimated)
Partition Coefficient (n-octanol/water):	3.54 (estimated)

10. STABILITY AND REACTIVITY

Stability:	Stable under normal conditions.
Conditions to Avoid:	Heat, temperatures above 60°C, excessive light, moisture
Incompatible Materials:	Oxidizing agents, strong acids, strong bases
Hazardous Decomposition Products:	Carbon dioxide, carbon monoxide, hydrogen fluoride, perfluoroisobutylene, toxic vapor, gas
Possibility of Hazardous Reactions:	Can react vigorously, violently, or explosively with the incompatible materials listed above.
Hazardous Polymerization:	Will not occur.

11. TOXICOLOGICAL INFORMATION

Toxicological Data:	Indan-1,2-dione:	No information found	
	Ethyl acetate:	Oral Rat LD50:	5620 mg/kg
		Inhalation Rat LC50:	4000 ppm 4 H
		Oral Mouse LD50:	4100 mg/kg
		Inhalation Mouse LC50:	1500 ppm 4H
	Methyl nonafluorobutyl ether:	Oral Rat LD50:	> 5000 mg/kg
		Inhalation Rat LC50:	> 100,000 ppm 4 H
	Methyl nonafluoroisobutyl ether:	Oral Rat LD50:	> 5000 mg/kg
		Inhalation Rat LC50:	> 100,000 ppm 4 H

Acute Effects:	May be harmful if swallowed. May enter lungs if vomited.
Local Effects:	Contact with skin or eyes may cause irritation. May be harmful if inhaled or ingested.
Sensitization:	Not a skin sensitizer.
Chronic Effects:	Prolonged or repeated exposure may cause skin damage or nervous system damage.
Carcinogenic Effects:	This product is not considered to be a carcinogen by IARC, ACGIH, NTP, or OSHA.
Skin Corrosion/Irritation:	May cause dryness or cracking to skin.
Epidemiology:	No information found
Mutagenicity:	May affect genetic material based on nonhuman data.

Neurological Effects: High vapor concentrations may cause dizziness, drowsiness, headache, and central and/or peripheral nervous system damage.

Reproductive Effects: May cause adverse reproductive effects based on animal data.

Teratogenic Effects: No information found.

Target Organs and Symptoms: Skin, central nervous system, liver, kidneys, lungs, respiratory system. Drowsiness, dizziness.

12. ECOLOGICAL INFORMATION

Ecotoxicological Data:

Indan-1,2-dione:

No information found

Ethyl acetate:

EC50 Water flea (Daphnia magna):	560 mg/L 48 H
LC50 Fathead minnow (Pimephales promelas):	220 mg/L 96 H
LC50 Rainbow trout (Oncorhynchus mykiss):	350 mg/L 96 H

Methyl nonafluorobutyl ether:

EC50 Water flea (Daphnia magna):	> 10 mg/L 48 H
LC50 Fathead minnow (Pimephales promelas):	7.9 mg/L 96 H
IC50 Green algae (Selenastrum capricornutum):	8.9 mg/L 96 H

Methyl nonafluoroisobutyl ether:

EC50 Water flea (Daphnia magna):	> 10 mg/L 48 H
LC50 Fathead minnow (Pimephales promelas):	7.9 mg/L 96 H
IC50 Green algae (Selenastrum capricornutum):	8.9 mg/L 96 H

Ecotoxicity: This product may be harmful to aquatic organisms.

Environmental Effects: This product is not expected to be harmful to the environment.

Persistence and Degradability: Expected to vaporize rapidly from aerobic environments.

Partition Coefficient (n-octanol/water): 3.54 (estimated)

13. DISPOSAL INFORMATION

Disposal Instructions: All wastes must be handled in accordance with local, state and federal regulations.

Contaminated Packaging: Since emptied containers retain product residue, follow label warnings even after container is emptied. Offer rinsed packaging material to local recycling facilities.

Waste Codes: No information found

14. TRANSPORT INFORMATION

Not regulated per U.S. DOT, IATA, or IMO.

15. REGULATORY INFORMATION

U.S. Federal Regulations:

OSHA: This product is not considered a "Hazardous Chemical" as defined by the OSHA Hazard Communication Standard, 29 CFR 1910.1200.

TSCA Inventory: Methyl Nonafluorobutyl Ether; Methyl Nonafluoroisobutyl Ether; Ethyl Acetate

U.S. EPCRA (SARA Title III):

Sections 311/312:

Hazard Categories	List (Yes/No)
Section 311 – Hazardous Chemical	Yes
Immediate Hazard	Yes
Delayed Hazard	No
Fire Hazard	No
Pressure Hazard	No
Reactivity Hazard	No

Section 313: No information found

CERCLA: Ethyl acetate: 5000 lb

International Inventories:

Country(s) or Region	Inventory Name	On Inventory (Yes/No)*
Australia	Australian Inventory of Chemical Substances (AICS)	N/A
Canada	Domestic Substances List (DSL)	N/A
Canada	Non-Domestic Substances List (NDSL)	N/A
China	Inventory of Existing Chemical Substances in China (IECSC)	N/A
Europe	European Inventory of Existing Commercial Chemical Substances (EINECS)	N/A
Europe	European List of Notified Chemical Substances (ELINCS)	N/A
Japan	Inventory of Existing and New Chemical Substances (ENCS)	N/A
Korea	Existing Chemicals List (ECL)	N/A
New Zealand	New Zealand Inventory	N/A
Philippines	Philippine Inventory of Chemicals and Chemical Substances (PICCS)	N/A

*A "Yes" indicates that the listed component(s) of this product comply with the inventory requirements administered by the governing country(s)

16. OTHER INFORMATION

Product Use:	Laboratory and/or field reagent
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Reason for Revision:	Not applicable