Safety Data Sheet

SECTION 1: Identification of the substance/mixture and of the company/undertaking

Identification of the substance or mixture

Product code TS-45950
Product name MOX Reagent

Company/undertaking identification

Life Technologies Corporation
5781 Van Allen Way
PO Box 6482
Carlsbad, CA 92008
+1 760 603 7200

Life Technologies
5250 Mainway Drive
Burlington, ONT
CANADA L7L 6A4
800/263-6236

Thermo Fisher Scientific
Pierce Biotechnology
P.O. Box 117
Rockford, IL 61105
United States
1.815.968.0747 or
1.800.874.3723

24 hour Emergency Response for Hazardous Materials [or Dangerous Goods] Incident. Spill, Leak, Fire, Exposure, or Accident. Call CHEMTREC
Within the USA + Canada: 1-800-424-9300 and 1-703-527-3887
Outside the USA + Canada: 1-703-741-5970

Country Specific Emergency Number (if available):

For research use only. Not for use in diagnostic procedures

SECTION 2: Hazards identification

GHS Classification

Signal Word
DANGER

Hazard pictograms

Health hazards

Acute oral toxicity	Category 4
Acute dermal toxicity	Category 4
Acute inhalation toxicity - vapor	Category 4
Skin corrosion/irritation	Category 2
Serious eye damage/eye irritation	Category 2

Physical hazards

GHS Physical Hazard	Flammable liquids
GHS Physical Hazard Category Number	Category 2

Environmental hazards

Chronic aquatic hazard	Category 3

Hazard Statements
H225 - Highly flammable liquid and vapor
H302 - Harmful if swallowed
H312 - Harmful in contact with skin
H332 - Harmful if inhaled
H315 - Causes skin irritation
H319 - Causes serious eye irritation
H412 - Harmful to aquatic life with long lasting effects

Precautionary Statements

Prevention
P210 - Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking
P264 - Wash hands thoroughly after handling
P280 - Wear protective gloves/protective clothing/eye protection/face protection
P261 - Avoid breathing dust/fume/gas/mist/vapors/spray
P270 - Do not eat, drink or smoke when using this product
P273 - Avoid release to the environment

Response
P370 + P378 - In case of fire: Use dry sand, dry chemical or alcohol-resistant foam for extinction
P301 + P310 - IF SWALLOWED: Immediately call a POISON CENTER or doctor/physician
P302 + P352 - IF ON SKIN: Wash with plenty of soap and water
P305 + P351 + P338 - IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing
P303 + P361 + P353 - IF ON SKIN (or hair): Remove/Take off immediately all contaminated clothing. Rinse skin with water/shower

Storage
P403 + P235 - Store in a well-ventilated place. Keep cool

Disposal
P501 - Dispose of contents/ container to an approved waste disposal plant

Other hazards
Not Applicable

HMIS

Health	2
Flammability	4
Reactivity	0

SECTION 3: Composition/information on ingredients

Chemical Name	CAS No.	Common name	EINECS-No	Weight-%
Pyridine	110-86-1	-	203-809-9	95-98
Methoxyammonium chloride	593-56-6	-	-	1-3

We recommend handling all chemicals with caution.

SECTION 4: First aid measures

Description of first aid measures

Skin contact Wash off immediately with plenty of water for at least 15 minutes. Remove and wash contaminated clothing and gloves, including the inside, before re-use. Immediate medical attention is required.

Eye contact Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. Immediate medical attention is required.

Ingestion Never give anything by mouth to an unconscious person. Do not induce vomiting without medical advice. Get medical attention if symptoms occur.

Inhalation Remove to fresh air. If not breathing, give artificial respiration. If symptoms persist, call a physician.

Notes to Physician Treat symptomatically.

Most important symptoms and effects, both acute and delayed
H225 - Highly flammable liquid and vapor H302 - Harmful if swallowed H312 - Harmful in contact with skin H332 - Harmful if inhaled H315 - Causes skin irritation H319 - Causes serious eye irritation H412 - Harmful to aquatic life with long lasting effects

Indication of any immediate medical attention and special treatment needed
IF SWALLOWED: Immediately call a POISON CENTER or doctor/physician. IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. IF INHALED: Remove person to fresh air and keep comfortable for breathing. IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water/ shower. If skin irritation occurs: Get medical advice/ attention.

SECTION 5: Firefighting measures

Extinguishing media

Suitable extinguishing media	Water spray. Carbon dioxide (CO_2). Foam. Dry chemical.
Unsuitable extinguishing media	Do not use water jet.

Special hazards arising from the substance or mixture
Highly flammable liquid and vapor. In a fire or if heated, a pressure increase will occur and the container may burst, with the risk of a subsequent explosion. Runoff to sewer may create fire or explosion hazard.

Protective equipment and precautions for firefighters
Wear self-contained breathing apparatus and protective suit.

SECTION 6: Accidental release measures

Personal precautions, protective equipment and emergency procedures
Ensure adequate ventilation
Avoid contact with skin, eyes or clothing
Use personal protection equipment
See section 8 for more information

Environmental precautions
No special environmental precautions required. Avoid discharge into drains and waterways whenever possible.

Methods and material for containment and cleaning up
Soak up with inert absorbent material.

Reference to other sections
See section 8 for more information.

SECTION 7: Handling and storage

Precautions for safe handling
Always wear recommended Personal Protective Equipment. See section 8 for more information. Do not get in eyes, on skin, or on clothing. Do not ingest. If during normal use the material presents a respiratory hazard, use only with adequate ventilation or wear appropriate respirator.

Conditions for safe storage, including any incompatibilities
Keep in a dry, cool and well-ventilated place. Keep in properly labeled containers. Store in accordance with local regulations.

Storage Conditions
Store between the following temperatures: 2 to 8°C (35.6 to 46.4°F).

Specific end use(s)
For research use only.

SECTION 8: Exposure controls/personal protection

Control parameters

Chemical Name	OSHA PEL	OSHA PEL (Ceiling)	ACGIH OEL (TWA)	ACGIH OEL (STEL)
Pyridine	5 ppm 15 mg/m^3	None	1 ppm	None
Methoxyammonium chloride	None	None	None	None

Chemical Name	Brazil - OEL - TWAs (LTs)	Brazil - OEL - Ceilings	Brazil - OEL - Skin Designations
Pyridine	4 ppm 12 mg/m^3	None	None
Methoxyammonium chloride	None	None	None

Engineering Measures Ensure adequate ventilation, especially in confined areas.

Exposure controls

Personal Protective Equipment

Respiratory protection In case of insufficient ventilation wear respirators and components tested and approved under appropriate government standards.

Hand protection Wear suitable gloves. Glove material: Compatible chemical-resistant gloves.

Eye protection Tight sealing safety goggles.

Skin and Body Protection Wear laboratory coat for body protection.

Hygiene Measures Handle in accordance with good industrial hygiene and safety practice

Environmental exposure controls
No special environmental precautions required.

SECTION 9: Physical and chemical properties

Information on basic physical and chemical properties

Appearance	liquid	
Color	Colorless	
Odor	No data	
Odor Threshold	No data	
Molecular Weight	No data	
Melting point / melting range	**°C** No data	**°F** No data
Boiling point / boiling range	**°C** No data	**°F** No data
Flash point	**°C** 20	**°F** 68
Autoignition Temperature	**°C** No data	**°F** No data
Decomposition temperature	**°C** No data	**°F** No data
Evaporation rate	No data	
Flammability (solid, gas)	No data	
Upper explosion limit	No data	
Lower explosion limit	No data	
Vapor Pressure	No data	
Vapor density	No data	
Relative density	No data	
Specific gravity	No data	
Solubility	No data	
Partition coefficient: n-octanol/water	No data	
Viscosity	No data	
Explosive properties	No data	
Oxidizing properties	No data	

Other information
No data.

SECTION 10: Stability and reactivity

Reactivity	None known.
Chemical stability	Stable under normal conditions.
Possibility of hazardous reactions	Hazardous reaction has not been reported.
Conditions to avoid	Avoid all possible sources of ignition (spark or flame). Do not pressurize, cut, weld, braze, solder, drill, grind or expose containers to heat or sources of ignition.
Incompatible materials	Oxidizing agent.
Hazardous decomposition products	Carbon dioxide. Carbon monoxide. Nitrogen oxides (NOx). halogenated compounds.

SECTION 11: Toxicological information

Information on toxicological effects

Chemical Name	Oral LD50	Dermal LD50	Inhalation LC50
Pyridine	= 891 mg/kg (Rat) = 866 mg/kg (Rat)	No data available	=28500mg/m^3(Rat) =12.898mg/L(Rat)
Methoxyammonium chloride	No data available	No data available	No data available

Principal Routes of Exposure

Acute toxicity May be harmful if swallowed, inhaled, or absorbed through skin.

Skin corrosion/irritation Skin irritation

Serious eye damage/irritation Irritating to eyes

Respiratory or skin sensitization Data are conclusive but insufficient for classification

Specific target organ toxicity (STOT) – single exposure Data are conclusive but insufficient for classification

Specific target organ toxicity (STOT) – repeated exposure Data are conclusive but insufficient for classification

Carcinogenicity Data are conclusive but insufficient for classification

Germ cell mutagenicity Data are conclusive but insufficient for classification

Reproductive toxicity Data are conclusive but insufficient for classification

Aspiration hazard Data are conclusive but insufficient for classification

SECTION 12: Ecological information

Ecotoxicity
The environmental impact of this product has not been fully investigated.

Chemical Name	Toxicity to algae	Toxicity to daphnia and other aquatic invertebrates	Toxicity to fish	Microtox Data	log Pow
Pyridine	Tetrahymena pyriformis EC50=520 mg/L (24 h)	Daphnia magna EC50=520 mg/L (24 h)	No data available	No data available	logPow0.65
Methoxyammonium chloride	No data available	No data available	No data available	No data available	No data available

Mobility in soil No information available.

Persistence and degradability No information available.

Bioaccumulative potential No information available.

Results of PBT and vPvB assessment
This mixture does not contain any substances that are assessed to be a PBT or a vPvB.

Other adverse effects No information available.

SECTION 13: Disposal considerations

Waste treatment methods
The generation of waste should be avoided or minimized wherever possible. Empty containers or liners may retain some product residues. This material and its container must be disposed of in according to approved disposal technique. Disposal of this product, its solutions or of any by-products, shall comply with the requirements of all applicable local, regional or national/federal regulations

SECTION 14: Transport information

IATA / ADR / DOT-US / IMDG
Classified as dangerous in the meaning of transport regulations

UN number	2924
UN proper shipping name	Flammable liquid, corrosive, n.o.s.(Methoxyammonium chloride, Pyridine)
Transport hazard class(es)	3(8)
Packing group	II

Environmental hazards
Not Applicable

Special precautions for user
Not Applicable

Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code
Not Applicable.

SECTION 15: Regulatory information

Component	US TSCA
Pyridine 110-86-1 (95-98)	Listed
Methoxyammonium chloride 593-56-6 (1-3)	Listed

US Federal Regulations

SARA 313
This product contains the following toxic chemical(s) subject to the notification requirements of section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986. This law requires certain manufacturers to report on annual emissions of specified chemicals and chemical categories. Please note that if you repackage, or otherwise redistribute, this product to industrial customers, a notice similar to this one should be sent to those customers.

Chemical Name	CAS No.	Weight-%	SARA 313 - Threshold Values
Pyridine	110-86-1	95-98	1.0

Clean Air Act, Section 112 Hazardous Air Pollutants (HAPs) (see 40 CFR 61)
This product does not contain HAPs

US State Regulations

California Proposition 65
This product contains the following Proposition 65 chemicals:.

Chemical Name	CAS No.	Weight-%	Category
Pyridine	110-86-1	95-98	Carcinogen

WHMIS Hazard Class

B2 - Flammable liquid
D1B - Toxic materials

This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations (CPR) and the SDS contains all the information required by the CPR.

National Regulations - Brazil

Chemical Name	CAS No.	Brazil - National Agency for Sanitary Surveillance (ANVISA)	Brazil - National List of Carcinogen Agents to Humans (LINACH)
Pyridine	110-86-1	Not Listed	Not Listed
Methoxyammonium chloride	593-56-6	Not Listed	Not Listed

SECTION 16: Other information

Reason for revision	SDS sections updated.
Revision number	3
Revision date	30-Jun-2020

For research use only. Not for use in diagnostic procedures.

References

- ECHA: http://echa.europa.eu/
- TOXNET: http://toxnet.nlm.nih.gov/
- eChemPortal: http://www.echemportal.org/
- LOLI database: https://www.chemadvisor.com/loli-database

Abbreviations and acronyms

TWA - Time-Weighted Average
OELs - Occupational Exposure Limits
STEL - Short Term Exposure Limit
DSL/NDSL - Canadian Domestic Substances List/Non-Domestic Substances List
KECL - Korean Existing and Evaluated Chemical Substances
ENCS - Japan Existing and New Chemical Substances
IECSC - China Inventory of Existing Chemical Substances
PICCS - Philippines Inventory of Chemicals and Chemical Substances
AICS - Australian Inventory of Chemical Substances
NZIoC - New Zealand Inventory of Chemicals
EINECS/ELINCS - European Inventory of Existing Chemical Substances/European List of Notified Chemical Substances
TSCA - United States Toxic Substances Control Act Section 8(b) Inventory
CEPA - Canadian Environmental Protection Act
EPA - Environmental Protection Agency
OSHA - Occupational Safety and Health Administration of the US Department of Labor
IATA - International Air Transport Association
DOT - Department of Transportation
IMDG - International Maritime Dangerous Goods
ACGIH - American Conference of Governmental Industrial Hygienists
NIOSH - National Institute for Occupational Safety and Health
AIHA - American Industrial Hygiene Association
HMIS - Department of Defense Hazardous Materials Information System
NTP - National Toxicology Program
IARC - International Agency for Research on Cancer

"The above information was acquired by diligent search and/or investigation and the recommendations are based on prudent application of professional judgment. The information shall not be taken as being all inclusive and is to be used only as a guide. All materials and mixtures may present unknown hazards and should be used with caution. Since the Company cannot control the actual methods, volumes, or conditions of use, the Company shall not be held liable for any damages or losses resulting from the handling or from contact with the product as described herein. THE INFORMATION IN THIS SDS DOES NOT CONSTITUTE A WARRANTY, EXPRESSED OR IMPLIED,INCLUDING ANY IMPLIED WARRANTY OF MERCHANTABILITY OR FITNESS FOR ANY PARTICULAR PURPOSE"

End of Safety Data Sheet