This document will be subject to revision accordingly upon any changes in chemical formulation.
Previous Revision Date: 2024.05.08

MATERIAL SAFETY DATA SHEET

FLEXIN-A-C

DRAG REDUCING AGENT (DRA)

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1. CHEMICAL PRODUCT/COMPANY IDENTIFICATION

Product Name:	Drag Reducing Agent (DRA)
Product Code:	FLEXIN-A-C
Revision Date	2024.05.08
Application:	Pressure reduction and flow increase for crude oil pipelines
Manufacturer:	**LONRON PETROLEUM TECHNOLOGY COMPANY** No. 8A Zijing Rd., Yongqing Industrial Park, Langfang, Hebei, China
Emergency Tel.:	+86-137-2265-3000 +86-316-569-1307/8

2. COMPOSITION/INFORMATION ON INGREDIENTS

Components	CAS	%
ISO-OCTANOL	104-76-7	42～48
Propylene Glycol	504-63-2	17～27
Polyalphaolefin	68037-01-4	26～28
N,N'-Ethylene Bis-Searamide	110-30-5	3～5

3. HAZARDS IDENTIFICATION

EMERGENCY OVERVIEW

Appearance / Odor

White liquid / noticeable hydrocarbon odor.

GHS Hazard Category and Hazard Class

Category 4

HMIS Rating

Health: 1(Slight); Flammability: 1(Moderate); Reactivity: 0 (Least)

POTENTIAL HEALTH EFFECTS

Primary Routes of Entry: Skin, inhalation

Overexposure may cause weakness, headache, nausea, confusion, blurred vision, drowsiness, and other nervous system effects; greater overexposure may cause dizziness, slurred speech, flushed face, unconsciousness, and convulsions.

Extreme overexposure or aspiration into the lungs may cause lung damage or death.

Overexposure may cause moderate to severe irritation to the eyes, nose, throat, lungs, and skin but good hygienic practices can minimize these effects.

Carcinogenicity Information

None of the components present in this material at concentrations equal to or greater than 0.1% are listed by IARC, NTP, OSHA or ACGIH as a carcinogen.

4. FIRST AID MEASURES

Inhalation

In case of inhalation, seek fresh air immediately. If breathing is difficult, get medical attention.

Skin Contact

In case of contact, immediately wash skin with soap and water. Wash contaminated clothing before reuse.

Eye Contact

In case of contact, immediately flush eyes with plenty of water for at least 15 minutes. Call a physician.

Ingestion

Aspiration hazards are expected from swallowing. If swallowed, do not induce vomiting. Immediately give 2 glasses of water. Never give anything by mouth to an unconscious person. Call a physician. If vomiting occurs naturally, have victim lean forward to reduce the risk of suffocation.

Notes to Physicians

Activated charcoal mixture may be administered. To prepare activated charcoal mixture, suspend 50 grams activated charcoal in 400 ml water and mix thoroughly. Administer 5 ml/kg, or 350 ml for an average adult.

5. FIRE FIGHTING MEASURES

Flammable Properties

Flash Point (CC): >60℃

NFPA Rating: Health 1(Slight); Flammability 1(Moderate);

Reactivity 0(Least)

GHS Hazard Category and Hazard Class

Category 4

Extinguishing Media

Water Spray, Foam, Dry Chemical, CO_2.

Fire Fighting Instructions

Use water to keep fire-exposed containers cool. If a leak or spill has not ignited, use water spray to disperse the vapors and to provide protection for personnel attempting to stop a leak.

Water spray may be used to flush spills away from sources of potential ignition.

Products of combustion may contain carbon monoxide, carbon dioxide, and other toxic materials. Do not enter enclosed or confined space without proper protective equipment including respiratory protection.

6. ACCIDENTAL RELEASE MEASURES

Safeguards (Personnel)

NOTE: Review FIRE FIGHTING MEASURES and HANDLING (PERSONNEL) sections before proceeding with clean-up. Use appropriate PERSONAL PROTECTIVE EQUIPMENT during clean-up.

Initial Containment

Prevent material from entering sewers, waterways, or low areas.

Prevent contact with hydrocarbons.

Spill Clean Up

Recover free liquid for reuse or reclamation. Soak up with sawdust, sand, oil dry or other absorbent material.

7. HANDLING AND STORAGE

Handling (Personnel)

Avoid breathing vapors or mist.

Prevent contact with skin or eyes.

Wash thoroughly after handling.

Wash contaminated clothing prior to reuse.

Storage

Avoid UV and direct sun exposure.
Store in sealed containers, cool and ventilated place.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Engineering Controls

VENTILATION

General ventilation is adequate.

Personal Protective Equipment

RESPIRATORY PROTECTION

Use appropriate NIOSH-approved organic vapor respiratory protection if exposure limits are exceeded, or overexposure is likely.

PROTECTIVE GLOVES

Wear protective gloves when any potential exists for skin contact. NBR or neoprene recommended.

EYE/FACE PROTECTION

Wear coverall chemical splash goggles and face shield when possibility exists for eye and face contact due to splashing or spraying materials.

OTHER PROTECTIVE MEASURES

Impervious protective clothing such as apron or chemical suit should be worn if splashing is possible. Launder contaminated clothing before reuse.

Exposure Guidelines

Branched primary alkyl alcohol

PEL (OSHA): Not Established

TLV (ACGIH): 50 ppm, 266 mg/m^3, 8 Hr. TWA, Skin

9. PHYSICAL AND CHEMICAL PROPERTIES

Physical State	Slurry (two-phase with fine solid particles dispersed in alcohol carrier)
Boiling Point, ℃@760 mm Hg	169.0
Flash Point, ℃ (CC)	>60.0
pH	Not Available
Odor	Alcoholic, slightly irritating
Form	Slurry
Color	White or light grey
Specific Gravity@ 20℃	0.850 -0.880
Viscosity (@ 25℃, 50s^{-1}), mPa·s	<400

10. STABILITY AND REACTIVITY

Chemical Stability

The material will maintain stable within the temperature range of -40 – +60 ℃ Stable.

Incompatibility with Other Materials

Prevent contact with hydrocarbons as this may form gel-like lumps which are hard to handle and may cause difficulties or even failure in pumping it into pipelines.

Decomposition

Complete combustion forms carbon dioxide; incomplete combustion may produce carbon monoxide.

Polymerization

Polymerization will not occur.

11. TOXICOLOGICAL INFORMATION

Animal Data

The effects in animals from single high exposures to vapors or liquid include respiratory tract and eye irritation; exposure to the undiluted liquid may result in corneal opacity. Repeated exposures caused respiratory irritation, nervous system depression, and reversible hematological effects.

12. ECOLOGICAL INFORMATION

Eco-toxicological Information

Component Aquatic Toxicity Information:

The 48-hr LC50 in a fish species was 23 mg/L.

13. DISPOSAL CONSIDERATIONS

Waste Disposal

Storage, transportation, and disposal must be in accordance with applicable Federal, State/Provincial, and Local regulations. Do not flush to surface water or sanitary sewer system.

14. TRANSPORTATION INFORMATION

Air Transport Permitted

DOT Classification

Not a DOT controlled material (United States).

Identification

Not available.

Special Provisions for Transport

Not applicable.

15. REGULATORY INFORMATION

WHMIS (Canada)

Not controlled under WHMIS.

DSCL (EEC)

This product is not classified according to the EU regulations.

HMIS

Health Hazard: 1

Fire Hazard: 1

Reactivity: 0

National fire protection association (USA)

Health: 1

Flammability: 1

Reactivity: 0

16. OTHER INFORMATION

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