

## FLOW ASSURANCE

### Drag Reducing Agent – IC DRA

#### OVERVIEW

IC DRA is a high-performance drag reducing agent (DRA) developed to optimize the transportation of hydrocarbon liquids in pipeline systems. Based on ultra-high molecular weight polymers suspended in an organic carrier, the product reduces turbulence-induced pressure losses, enabling increased throughput without capital modifications to existing infrastructure. IC DRA activates instantly upon contact with the flow, forming molecular structures that suppress turbulence and streamline flow dynamics.

#### POTENTIAL APPLICATION

IC DRA is suitable for use in crude oil, gas condensate, and refined petroleum product pipelines operating under turbulent flow conditions. Upon injection, the polymer molecules stretch and align with the flow direction, effectively dampening turbulent eddies and reducing frictional pressure drop throughout the pipeline system.

IC DRA is available in three product variants to meet specific application needs:

- IC DRA-H – optimized for crude oil systems
- IC DRA-L – suitable for crude oil, gas condensate, and refined products
- IC DRA-S – designed for versatile use with light hydrocarbons

#### RECOMMENDED DOSAGE

Injected continuously into the hydrocarbon stream using suitable metering systems.

Typical dosage range: 1 to 50 g/ton, depending on the fluid properties and pipeline operating conditions.

Property	Value
Appearance	Viscous liquid from clear to yellow
Density at 20°C, gr/cm <sup>3</sup>	0.85 – 0,95
Viscosity at 20°C, mm <sup>2</sup> /sec	Not more than 50
Freeze point, °C	above minus 20
Active content, %	Not less than 60%

#### FEATURES AND BENEFITS

- Provides substantial drag reduction at low concentrations
- Improves pipeline throughput and reduces energy consumption
- Rapid activation and uniform dispersion within the treated flow
- Fully dissolves in hydrocarbon media – leaves no residue
- Low-viscosity formulation for easy handling, storage, and dosing
- Compatible with standard production and transportation chemicals

#### STORAGE AND PACKAGING

IC DRA should be stored in tightly sealed containers, protected from moisture and direct sunlight

Recommended storage temperature: 5°C to 40°C

Available packaging options:

- 200-liter drums
- 1,000-liter IBC containers
- Bulk delivery available upon request

#### LIMITS

- IC DRA is not designed to dissolve or remove pre-existing solid deposits
- Should not be diluted before injection