

ATLANT INDUSTRIES

1. OIL & GAS DRAG REDUCING ADDITIVES

1.1. Oil Drag-Reducing Additive

1.1.1. DRA-038N Oil Drag-Reducing Additive/Alpha-Olefin Copolymer

1.2 . Gas Drag-Reducing Additive

1.2.1. DRA-039G Gas Drag-Reducing Additive

Drag reducing additives are important in oil drilling applications and the maintenance of pumping equipment in pipelines. Flow drag in pipes can be reduced by adding a small amount of high molecular polymer. Pipeline flow improvers, or drag reducing agents, have been utilized in the petroleum industry for many years.



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1.1. OIL DRAG REDUCING ADDITIVE/ ALPHA OLEFIN COPOLYMER

1.1.1.

Name: DRA-038N Oil Drag-Reducing Additive

Packaging: IBC containers (1000 l); tank container

Shipment: 20 IBC containers/20-foot container; 26 CBM/ISO tank container

Purpose:

Increasing the throughput of the pipeline and reducing the pressure.

Efficiency:

Drag reduction to 59.1% (based on testing by the Institute of Chemical Engineering). At the moment, our product is one of the most effective on the market. Efficiency also depends on the pipeline condition and the oil composition.

Description:

Drag-reducing additive is an ultra-high molecular weight polyalphaolefin. DRA-038N is a non-aqueous thermally versatile suspension, allowing it to be used in almost any conditions in the temperature range from -55 to +40°C. DRA-038N does not affect the quality of oil products, which has been proven by numerous tests.

Main Components:

Isooctanol	45-50%
Propylene Glycol	10-15%
Poly(1-decene)	20-30%



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Technical Specifications:	Standard Value
Total solids	25% - 35%
pH	5.0-8.0
Drag reduction (loopback test)	>55%
Polymer content	28% - 32%
Pour point	-55°C
Flash point (closed cup)	>60°C
Viscosity (20°C, 50s-1), mPa·s	<300
Density	0.85~0.9
Color	White to slightly yellow
Boiling point	169 °C at 760 mm Hg
Odor	Slightly acrid
Form	Suspension



1.2 . GAS DRAG REDUCING ADDITIVE

1.2.1.

Name: DRA-039G Gas Drag-Reducing Additive

Packaging: IBC containers (1000 l)

Shipment: 20 IBC containers/20-foot container

Purpose:

Gas drag-reducing additive is a chemical substance that reduces drag to gas flow and increases it by up to 30%.

Description:

This is a highly effective chemical additive that can significantly reduce gas flow drag and increase gas throughput in the pipeline. DRA-039G series drag reducing agent is a neutral (pH is 6-8), non-flammable, non-explosive, non-corrosive, non-oxidizing, non-poisonous, non-toxic white-yellow emulsion fluid. Its flash point is 65°C and its freezing point is -55°C, which is suitable for land, sea and air transportation.

Efficiency:

The action principle of the gas drag-reducing additive involves forming a smooth and elastic film on the inner wall of the gas pipeline, which reduces the frictional drag of the gas against the pipe wall. Thus, the throughput of the gas pipeline is increased.

Depending on the actual needs and the condition of the gas pipeline, the end user can control and set the pressure, thus influencing the throughput of the gas pipeline. As a result, due to the mode of action of the additive, gas pipeline throughput can be increased, while maintaining the operating pressure, or the operating pressure of the gas pipeline can be reduced, while keeping the throughput of the gas pipeline unchanged. Depending on the condition of the pipes, the effect of drag reduction will differ.

The average drag reduction rate in mass production is 15%~20% and the increase in gas flow is 20-25%. Testing the effect of gas additives is more complicated than testing a copolymer in an oil pipeline, so the indicators have discrepancies and are not perfectly accurate, it all depends on the specific condition of the gas pipeline. If this product is used correctly at all times for a long period, there appears a tendency for a positive cumulative effect to increase the drag reduction ratio.

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Main Components:

Polymer	35-45%
Octanol	50-60%
Dispersant	3%
Surface active agent	2%

Technical Specifications:	Standard Value
Gas flow drag reduction	10~20%
Gas pipeline throughput increase	15%-30%
Pour point	<-50°C
Flash point (closed cup)	≥60°C
Viscosity (20°C, 50s-1), mPa·s	<200
Density	1.0~1.20
Appearance	Yellow liquid

Operating Instructions:

Below is the formula for calculating the injection volume:

$$Q = 3.14 \times D \times L \times \mu \times K$$

Q is additive injection volume (m³)

D is pipe diameter (m)

L is pipe length (m)

μ is additive film thickness (normally 5×10^{-5} (m))

K is injection ratio (normally 2).

Example:

The pipeline diameter is 0.5 meters, length is 100 km, and 15.7 tons of gas drag-reducing additive are injected at one time.

$$Q = 3.14 \times 0.5 \times 100\,000 \times (5 \times 10^{-5} \times 2) = 15.7 \text{ tons}$$

Under normal conditions, the additive's lifetime is about 60 days. It needs to be injected once every 60 days or 6 times per year. For a pipeline with a diameter of 0.5 meters and a length of 100 kilometers, the total annual injection volume is 94.2 tons.

$$Q \text{ (annual volume)} = 15.7 \times 6 = 94.2 \text{ tons}$$

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