

# Technical Bulletin

## Drag Reducing Agent

### Apollo A-1010 M (FLO – 1010 Improved)

**DESCRIPTION** **A – 1010 M** is a specific concentrated chemical product to act as a friction reducing agent, in the transport of crude oil, it has an ultra molecular weight, it is a copolymer dispersed in an organic solution. Reduces pressure losses due to frictional and increases flow and/or lowers operating pressures in pipelines.

**A – 1010 M** is fully compatible and soluble with the crude oil transported in PEMEX, does not alter any of the physical or chemical properties of the crude oil and does not generate any impact on the subsequent chemical processes of the system where the flow improver, the reducing agent, was used. Drag A – 1010 M remains in solution with the oil being transported, without covering the walls of the pipeline. Likewise, the friction reducing agent **A – 1010 M** does not alter the mechanical and physical conditions of PEMEX's facilities and instrumentation, such as pipes, valves, connections and measuring instruments, due to clogging or obstruction, which cause failures in the operation.

**A – 1010 M** is injected into the pipeline by an injection module consisting of:

- A high pressure pump with stroke adjustment
- A positive displacement flow meter
- Instrumentation (Manometers)

**APPLICATION** **The highest and highest drag reduction.**- The ultra molecular weight polymer technology allows it to dissolve instantly in crude oil, much faster than common gel-based products. However friction reduction is a solution phenomenon, rapid solutions translate into more immediate benefits in treated pipelines.

**BENEFITS** **High activity, Low Viscosity.**- The properties of the ultra molecular weight polymer technology provide a product with a high active content and low viscosity. The low viscosity makes the handling of the product easier and, due to its high content of active ingredients, it minimizes the need to use excess product to obtain the results.

**STORAGE** It is packaged in 550 and 6,000 gallon containers, which are mounted on tank cars or platforms.  
**A -1010** Enhanced requires agitation which is provided in the injection module.  
**A -1010** Improved must be handled in compliance with all current safety standards for petroleum products.

**PRESENTATION** **A-1010** Improved Drag Reducing Agent is delivered in 550 to 6000 gallon capacity containers.