

HP DRA

Drag Reducing Agents

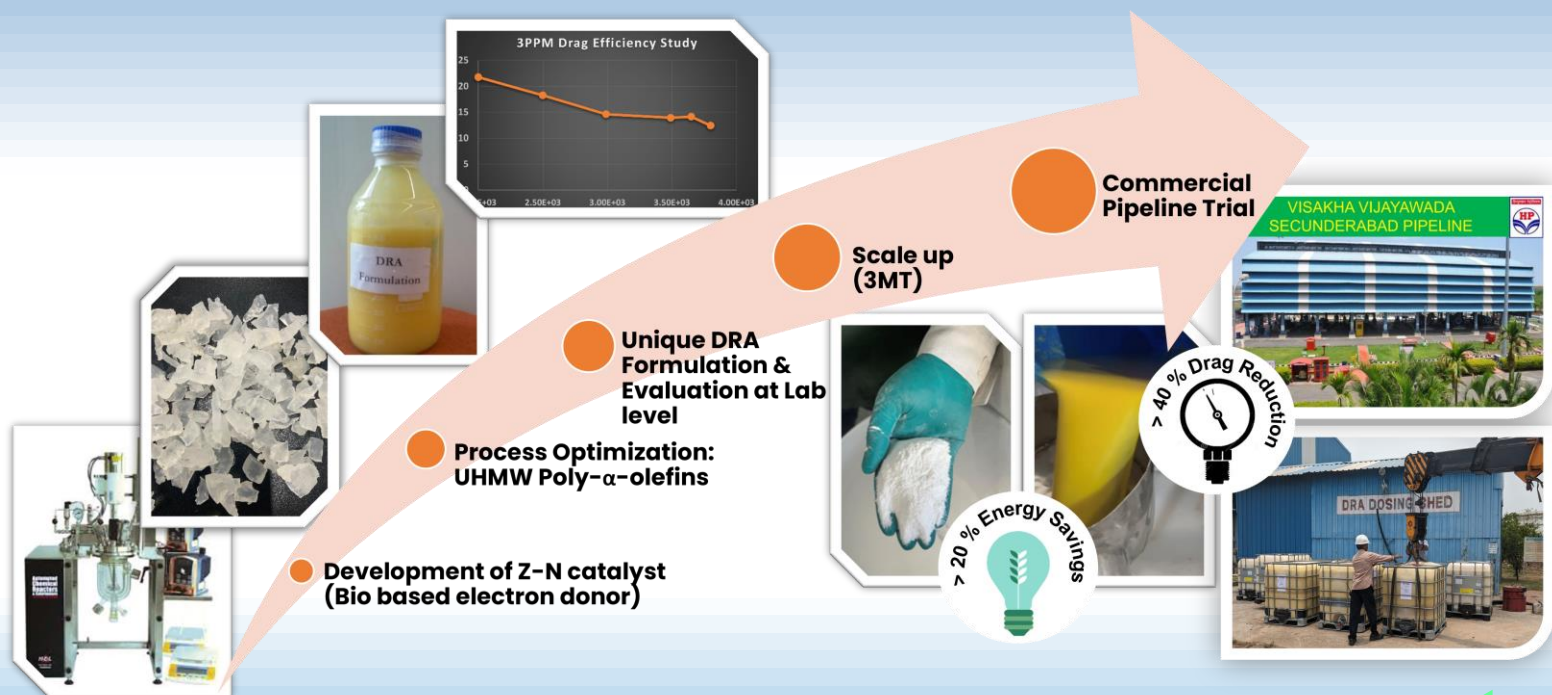
“HPCL Green Research & Development Center (HPGRDC) has developed Drag Reducing Agent (DRA)”

Challenges

Highly air & moisture sensitive chemistry

UHMW Poly-alpha-olefins with $M_v > 15 \text{ M Da}$

Development of a Drag Reducing Agent (Lab to Trial)



Patented catalyst system for UHMW poly- α -olefins

Patented unique & novel HP-DRA formulation

Patented

HP DRA

Drag Reducing Agents

HP DRA

(Drag Reducing Agents)



**Indigenous DRA
Formulation (Patented)**

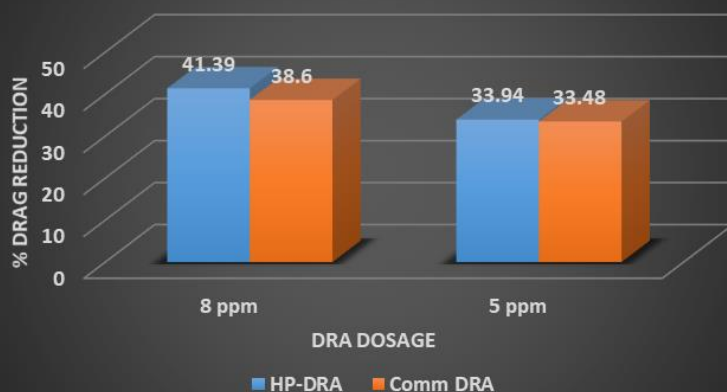
**>40 % Drag Reduction in
8 ppm**

**Improved Flow &
Efficiency**

**Consistent Performance
& Cost Effective**

Name of the Pipeline	Dosage in PPM	% Drag Reduction
HPCL-Pipeline (Refined Product Pipeline)	8	41.39
	5	33.95
	3	23.24

HP-DRA Performance



HP-DRA Samples
exported to countries in
the middle east



Sample was tested for
crude oil at laboratory
level (middle east)



Performance of HP-DRA
is satisfactory (20 % drag
reduction in 5 ppm HP-
DRA Dosage)

“HP-DRA formulation is designed to enhance the transportation of oil & finished product, smoothing the flow and improving throughput efficiency”