Hindustan Petroleum Corporation Limited
Green R&D Centre, Bengaluru

HP – EGIN (Ethanol Gasohol Inhibitor)

HP-EGIN

Effective corrosion inhibitor for Ethanol storage and Gasohol

Ethanol blended gasoline storage is very critical because the storage requires moisture-resistant tanks with high-quality internal coating/linings. Since ethanol has the superior tendency to increase the octane number in fuel, it is being blended with commercial fuel.

For the above reason, ethanol is stored separately in the tank and will be mixed with fuel as per needs. Contrarily, ethanol has a high affinity for absorbing moisture. The dissolved oxygen and water in ethanol participate significantly in metal dissolution/corrosion. Interestingly, under some conditions, dissolved oxygen initiates the oxidation of ethanol into acid, leading to an increase in the acidity of the medium and corrosion.

Thus, the objective of HPGRDC was to develop a cost-effective and novel corrosion inhibitor (HP-EGIN) for anhydrous ethanol and gasohol media.

The figure represents the effect of HP-EGIN on coupons (left to right) in different ethanol blends and medium and (i) in ethanol – without inhibitor, (ii) E5 blend - with inhibitor, (iii) E10 blend - with inhibitor, (iv) E20 blend - with inhibitor (v) in ethanol - with inhibitor.

The dosage levels of the developed in-house inhibitor are less compared to the commercial product for ethanol blends (E10 and E20). The dosage level is the same for the neat ethanol as compared to the commercial inhibitor.

Medium			
	C%	Rating	Dosage (ppm)
E5	0.03	B++	12-15
E10	0.04	B++	18-20
E20	0.06	B++	30-32
Ethanol	0.4	B+	200-210

HP-EGIN was scaled up and distributed to Bengaluru and Madurai terminal for the field trials.