

Case Study

Longer life through superior performance
of PURASPEC chloride guards

Background

Catalytic reforming (CRU) catalysts are dosed with chlorides to provide necessary acid functionality. These chlorides are not permanently bound and can cause various corrosion and fouling issues in the CRU and downstream units. Chloride guard beds can be installed to remove the chloride in a variety of locations around the catalytic reformer, as shown in Figure 1.

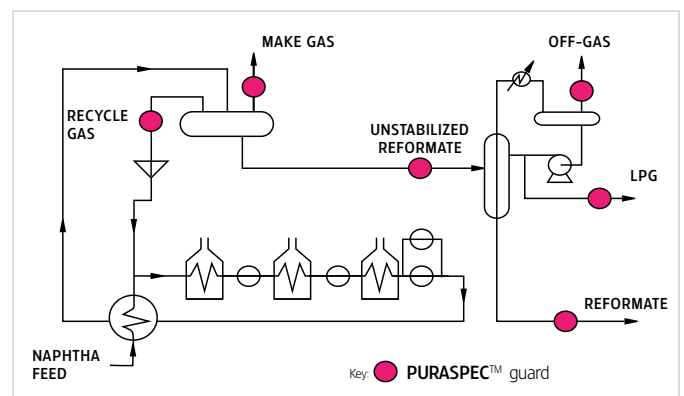


Figure 1. Chloride Guard Locations

Chloride Guard Performance

This case study highlights the superior performance of Johnson Matthey's **PURASPEC™ CLEAR™** chloride removal solutions at a large refinery in southeast Asia. The catalytic reformer unstabilized reformat application can be summarized in the following table:

Unit Information	
Unit Type	CCR
Feed	Unstabilized Reformat

It is beneficial to treat the unstabilized reformat stream as it protects the stabilizer tower, fuel gas system, and LPG system from corrosion and salting/fouling. Common issues of salting and corrosion require costly tower water washes, resulting in lost product, reduced unit rates, and time for critical operations and maintenance resources in the refinery. A guard bed at this location also eliminates the need for separate beds on the off gas, LPG and reformat streams.

The refinery utilized Johnson Matthey's tailored loading solution of **PURASPEC** proprietary **PERFORM™** absorbents. Total chloride measurement was employed for breakthrough monitoring. **PURASPEC** more than doubled the previous competitive run lengths (Figure 2) through superior product performance, maintaining the desired 0.5 ppmw exit specification for total chloride.

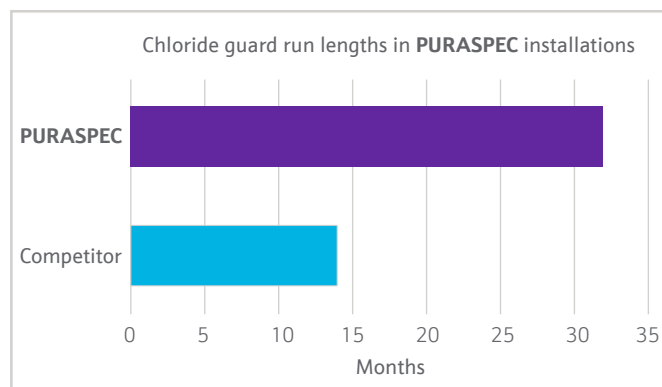


Figure 2. Chloride Guard Run Lengths

Superior Total Chloride Removal

The chloride removal performance offered by **PURASPEC** liquid phase products is the best in the market due to the advanced functionality of the material. Johnson Matthey's **PURASPEC** chloride guards for liquid duties have been developed to offer the following key advantages:

- Lowest life-cycle cost
- Sharp absorption profile to maximize run length
- Easy discharge (no release of adsorbed HCl)
- Resistance to caking
- No formation of organic chlorides in the exit stream
- No formation of complex organic by-products
- Exit specifications to ppb level
- Granular material available in different sizes to match pressure drop requirements.

Johnson Matthey's **PURASPEC CLEAR** absorbents are fit-and-forget solutions for chloride removal demonstrating excellent performance in service and ensuring hassle free operation for refiners.

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