

# Process Safety Forum

The Process Safety Forum consists of representatives from UKPIA, TSA, CIA, OGUK and NIA

## Process Safety Alert 004

Issued on:

01<sup>st</sup> March 2010

Issued by:

Process Safety Forum

Subject:

Mercury in Crude

Issue

Mercury is present in most crudes, but occurs at elevated levels (above 10 ppb) in specific North Sea crudes and even higher levels in some gas field condensates. Also the level of mercury in North Sea crudes appears to be increasing with time.

Mercury can deposit as elemental mercury in specific equipment (e.g. crude distillation column overheads) risking exposing maintenance personnel to elevated levels of mercury vapour when they are inside the equipment during turnarounds.

Mercury can cause corrosion of aluminium-based alloys, some types of steels and some copper-based alloys, risking their premature failure via liquid metal embrittlement or amalgamation. Due to its vapour pressure, mercury concentrates in the lighter fractions such as naphtha and LPG.

Learning

The mercury content of North Sea crudes is higher than in the past.

Prior to turnarounds, downstream processing facilities should review the propensity for elemental mercury deposition in the various units.

Where mercury is likely to be present they should have processes in place to minimise personnel exposure to the vapours (e.g. gaseous mercury concentration measurements on equipment opening and appropriate Personnel Protection Equipment).

Downstream processing facilities should also consider the possible interactions between the mercury in feed streams and the metallurgy of the relevant equipment, and take action where appropriate.

Further Consideration

The measurement of mercury in feed streams is not straightforward and needs appropriate expertise.

Distribution:

Process Safety Forum, Health and Safety Executive