OPEX of the process unit. Additionally, when the in series reactor arrangement of Figure 2 is employed, this is typically in the form of a lead-lag configuration. In this case, when pressure drop across the lead reactor bed increases, the lead reactor is shut down for catalyst replacement or cleaning. For this arrangement, auxiliary systems are required containing heaters, compressors, separators and pumps, which leads to further increases in the CAPEX and OPEX of the process unit.

It would thus be desirable to provide a process for stabilising a liquid oil stream that is susceptible to polymerisation that does lead to significant increases in CAPEX and OPEX.

**SUMMARY**

The present disclosure relates to a process for hydrotreating a liquid oil stream in a continuous operation in a fixed bed reactor;
wherein the liquid oil stream is a thermochemical decomposition oil stream, and contains polymerisable reactive compounds;
wherein the fixed bed reactor comprises at least a first reactor bed containing a first hydrotreatment catalyst and a second reactor bed containing a second hydrotreatment catalyst;
the process comprising the steps of:
(i) in a first operation period, passing as a first reactor bed liquid oil substream at least 50 vol.% of the liquid oil stream through the first reactor bed and subsequently through the second reactor bed;
(ii) in a second operation period, on determination of deposition of material formed from the polymerisable reactive compounds on the first reactor bed, passing a reduced proportion of the liquid oil stream as the first reactor bed liquid oil substream, and passing an increased proportion of the liquid oil stream through the second reactor bed having not passed through the first reactor bed as a second reactor bed liquid oil substream,
wherein during the second operation period the first reactor bed liquid substream volume is at least 10 vol.% and less than 90 vol.% of the first reactor bed liquid oil substream volume of the first operation period.

In one aspect, the present disclosure relates to a process for hydrotreating a liquid oil stream in a continuous operation in a fixed bed reactor;
wherein the liquid oil stream is a thermochemical decomposition oil stream, and contains

polymerisable reactive compounds;
wherein the fixed bed reactor comprises at least a first reactor bed containing a first hydrotreatment catalyst and a second reactor bed containing a second hydrotreatment catalyst;
the process comprising the steps of:
(i) in a first operation period, passing as a first reactor bed liquid oil substream comprising at least 50 vol.% of the liquid oil stream through the first reactor bed and subsequently through the second reactor bed;
(ii) in a second operation period, on determination of deposition of material formed from the polymerisable reactive compounds on the first reactor bed, passing a reduced proportion of the liquid oil stream as the first reactor bed liquid oil substream, and passing an increased proportion of the liquid oil stream through the second reactor bed having not passed through the first reactor bed as a second reactor bed liquid oil substream,
wherein during the second operation period the first reactor bed liquid substream volume is at least 10 vol.% and less than 90 vol.% of the first reactor bed liquid oil substream volume of the first operation period.

In another aspect, the present disclosure relates to a process plant configured for carrying out the process as described herein.

**DETAILED DESCRIPTION OF THE INVENTION**

As discussed herein, in one aspect there is provided a process for hydrotreating a liquid