~~At least~~ oOne ~~embodiment~~aspect of the ~~invention~~present disclosure is directed to a method of reducing an increase in viscosity or maintaining viscosity and a drop in the heat transfer coefficient of quenching media which is repeatedly circulated through a hot circulation system. The method comprises the step of adding a preserving composition to the quenching media. The composition comprises: a) high temperature polymerization inhibitor, b) a tar dispersant, and c) a viscosity reducer.

The composition may further comprise a high boiling point solvent. The high temperature polymerization inhibitor may be 1–naphthol, or hindered phenol, or a combination thereof. The tar dispersant may be alkyl substituted phenol formaldehyde resin. The viscosity reducer may be alpha olefin-alkyl maleate co-polymer. The composition may be added to the quenching media to result in an amount of 100-10000 ppm. The quenching media may be quench oil. The hot circulation loop may be a primary fractionator quench oil loop in an ethylene plant. The hot circulation loop may be one selected from the list consisting of a primary fractionator in ethylene plant or an EDC/VCM application. The residence time of the quenching media in the reaction vessel may be highly variable. The temperature of the quenching media in the reaction vessel may be between 20 and 300° C.

Additional features and advantages are described herein, and will be apparent from, the following Detailed Description.

Detailed Description of the Invention

The following definitions are provided to determine how terms used in this application, and in particular how the claims, are to be construed. The organization of the definitions is for convenience only and is not intended to limit any of the definitions to any particular category.

"High Temperature Polymerization Inhibitor" means a composition of matter that