

ABSTRACT OF THE DISCLOSURE

**TITLE OF INVENTION: MIXED REFRIGERANT CYCLE FOR
ETHYLENE RECOVERY**

A closed-loop mixed refrigerant cycle provides efficient low-level refrigeration for recovering ethylene from a mixed gas feed. Compressed mixed refrigerant vapor is condensed at -20°F to -50°F and is subcooled to -175°F to -225°F by indirect heat exchange with cold H_2 , methane, and expander streams from elsewhere in the ethylene plant. A portion of the subcooled refrigerant may be flashed to provide additional subcooling of the main mixed refrigerant stream. Subcooled mixed refrigerant is subsequently flashed to provide very low temperature level refrigeration for feed condensation and demethanizer overhead condenser duties. The invention allows advantageous operation of the feed chilling train at pressures between 150 and 400 psia.

Figure 2 of the drawings should accompany the abstract when published.