# PRODUCT INFORMATION

A PRODUCT OF AMERICAN CHEMICAL TECHNOLOGIES, INC.

# CONVERTING HYDRAULIC SYSTEMS TO *EcoSafe® EHC* FLUIDS

Thoroughness and preparation must be prime considerations when changing fluids in a hydraulic system. Sufficient time, thought and care can often mean the difference between successful operation and shutdown. Your American Chemical Technologies' representative is trained and experienced in all aspects of hydraulic system conversion and hydraulic system compatibility.
NOTE: Avoid the use of halogenated solvents in system cleaning.

## Changing from Phosphate Ester Type Fluids to EcoSafe® EHC

1) Studies have shown phosphate ester fluids and/or phosphate ester/petroleum oil blends to be completely miscible in EcoSafe® EHC fluids.

2) If a 'Fullers Earth' filter is used on the phosphate ester fluid for the control of the Total Acid Number, it should be valved off and eventually removed from the system. This type of filtration is not necessary, nor recommended, for EcoSafe® EHC fluids. Standard depth type filters that carry an 'absolute' rating are recommended.

Although miscible, solids are known to form upon long term mixing of phosphate ester and EcoSafe® EHC fluid depending upon the condition of the phosphate ester and water content. For phosphate esters, the recommended maximum as a foreign oil contaminant is no more than 3% phosphate ester for long-term operation and before the system is considered to be converted to EcoSafe® EHC. Test samples should be pulled to confirm the phosphate ester content. In converting from phosphate esters to EcoSafe® EHC, the presence of phosphate ester should be acted upon without delay until tests indicate that the phosphate ester has been removed from the system.

For phosphate ester containing systems, it is recommended that the system be drained and flushed before introducing EcoSafe® EHC fluids to avoid future disposal problems (i.e.: contamination by the phosphate ester fluid). This is more expensive than disposing of EcoSafe® which can be waste hauled like any petroleum oil.

1) Completely drain and clean the system.

2) Drain and blowout pipelines, headers, hoses, valve stacks and manifolds with clean dry air. Manually clean reservoir. Determine compatibility of coatings inside of reservoir.

3) Drain pumps, accumulators, hydraulic motors and cylinders to insure removal of all fluids.

4) Dismantle, wash and clean strainers.

5) Drain & clean filter housings. Determine filter element compatibility with the EcoSafe® EHC fluid and replace or clean as necessary.

6) Thoroughly drain and clean coolers.

7) Close system and circulate, at low pressure as recommended by the component supplier, a quantity of light petroleum oil (22-46 cSt @ 40°C, 105-215 SUS @ 100°F) or EcoSafe® EHC sufficient to cover pump inlet.

8) Repeat steps #1 through #6 until there is less than 3% phosphate ester remaining in the system as determined by lab analysis.

9) Close the system and refill promptly with EcoSafe® EHC fluid.

10) After system is in operation, inspect carefully for leakage during the next two to three weeks.

## Changing from Polyol Ester type fluids to EcoSafe® EHC

1) Studies have shown that polyol ester fluids are incompatible with EcoSafe® EHC. The anti-mist additive contained in the polyol ester becomes insoluble when EcoSafe® EHC becomes the dominant fluid in the reservoir. Because of this insolubility, special care and attention should be taken when converting from polyol ester to EcoSafe® EHC.

2) Completely drain and clean the system.

3) Drain and blowout pipelines, headers, hoses, valve stacks and manifolds with clean dry air. Manually clean reservoir. Determine compatibility of coatings inside of reservoir.

4) Drain pumps, accumulators, hydraulic motors and cylinders to insure removal of all fluids.

5) Dismantle, wash and clean strainers.

6) Drain & clean filter housings. Determine filter element compatibility with the EcoSafe® EHC fluid and replace or clean as necessary.

7) Thoroughly drain and clean coolers.

8) Close system and circulate, at low pressure as recommended by the component supplier, a quantity of light petroleum oil (22-46 cSt @ 40°C, 105-215 SUS @ 100°F) sufficient to cover pump inlet.

4) Repeat steps #2 through #7.

5) Close system and circulate, at low pressure as recommended by the component supplier, a quantity of EcoSafe® EHC fluid sufficient to cover pump inlet.

6) Repeat steps #2 through #7.

7) Close the system and refill promptly with the proper viscosity EcoSafe® EHC fluid.

8) After system is in operation, inspect carefully for leakage during the next two to three weeks

## Changing from Petroleum Oil to EcoSafe® EHC

1) Completely drain and clean the system. Small amounts of residual oil will not interfere with the performance of EcoSafe® EHC fluids, but will reduce their fire resistance.

2) Drain and blowout pipelines, headers, hoses, valve stacks and manifolds with clean dry air. Manually clean reservoir. Determine compatibility of coatings inside of reservoir.

3) Drain pumps, accumulators, hydraulic motors and cylinders to insure removal of all fluids.