



# Greenplus Hydraulic Fluid ES

## Technology Fact Sheet for Greenland Corporation

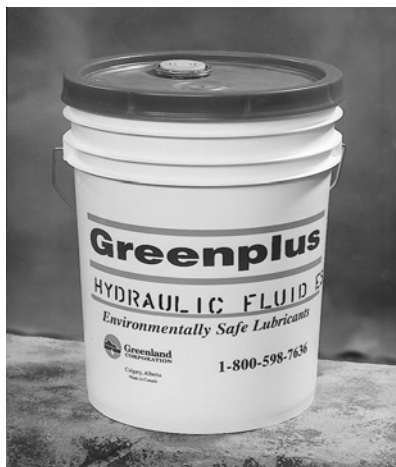
### Performance Claim

When tested for acute lethality on trout, Greenplus Hydraulic Fluid ES, manufactured by Greenland Corporation, will achieve an LC<sub>50</sub> at least as high as 40,000ppm when the hydraulic fluid is added to water in the test ratio and tested in accordance with Section 5 of Environment Canada’s EPS1/RM/9 July 1990, as amended May 1996.

### Technology Description

Greenplus Hydraulic Fluid ES (Figure 1) has been developed by Greenland Corporation to provide high performance hydraulic fluid characteristics (Table 1) while minimizing the risk of damage to the environment, from leaks and spills, as well as the chemical hazard posed to equipment operators and mechanics. The manufacturing process starts with a vegetable-oil base stock and uses only additives that contain no petroleum or mineral oils and no heavy metals.

**Table 1: Specifications for Greenplus Hydraulic Fluid ES**



**Figure 1: Greenplus Hydraulic Fluid ES**

|  |             |
|--|-------------|
| Grade (ISO)                                  | 46          |
| Specific Gravity<br>g/cm <sup>3</sup> @ 15°C | .91         |
| Kinematic Viscosity: 40°C                    | 42 cSt      |
| 100°C  | 9.1 cSt     |
| 100°F  | 210 SUS     |
| 210°F  | 56 SUS      |
| Viscosity Index                              | 239         |
| Flash Point                                  | 279°C/534°F |
| Pour Point                                   | -36°C/-33°F |
| pH   | 7.0 - 7.2   |
| LC50 (PPM)                                   | >40,000     |

### Technology Application

Greenplus Hydraulic Fluid ES is used in all standard and many specialty hydraulic fluid applications. It is used preferentially by environmentally responsible hydraulic equipment operators working in food processing and in environmentally sensitive locations such as watershed areas, waterways, parks and other recreational areas, as well as in general construction and other specialized applications.



## Performance Conditions

Greenplus Hydraulic Fluid ES was tested in accordance with Section 5 of Environment Canada's EPS1/RM/9 July 1990, as amended May 1996. The normal, "static" test method was judged appropriate for testing this hydraulic fluid because it more closely resembles the conditions which would result from a spill of the oil into a waterway. The normal mixing procedures for this test procedure require only initial thorough stirring, with no further mixing within the 96 hours of the test. During this time any water-soluble elements (toxic or non-toxic) in the test substance would leach out into the water.

## Verification

The verification of the performance claim was carried out by J.K. Engineering, Calgary, Alberta using test data generated by Maxxam Analytics, Edmonton, Alberta.

## What is the ETV Program?

The Environmental Technology Verification (ETV) Program is delivered by ETV Canada under license agreement from Environment Canada. The ETV Program is designed to support Canada's environment industry by providing credible and independent verification of technology performance claims.

### For more information on the Greenplus Hydraulic Fluid ES

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### Limitation of Verification

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