Technical Data Sheet

Shell Irus *DU-NA 68*

High performance less flammable hydraulic fluids

Shell Irus Fluids DU-NA are advanced, anhydrous less flammable hydraulic fluids based on synthetic esters and proven additives. These ISO Class HFDU fluids are specially designed to provide good performance in conventional hydraulic systems and have better fire resistance than mineral oils.

DESIGNED TO MEET CHALLENGES

Performance, Features & Benefits

- Lower flammability than mineral oils
- Factory Mutual Group 1 Approved
- Extended fluid change intervals
- Pump life similar to life with mineral hydraulic oils
- Low flammability maintained during the life of the fluid
- Compatible with most seal materials
- Readily biodegradable according to OECD 301B

Main Applications

Typical applications for Irus DU-NA are to be found in the metal, mining and glass industries. Irus Fluids DU-NA replace mineral oils in hydraulic installations to provide good lubrication and a higher degree of fire resistance.

Specifications, Approvals & Recommendations

- Factory Mutual Group 1 Approved.
- Classification HFDU according to ISO 6743-4
- Readily biodegradable according to OECD 301B

For additional questions regarding equipment approvals and recommendations, please consult your local Shell Technical Helpdesk, or the OEM Approvals website.

Compatibility & Miscibility

- **Seal Compatibility**

  Shell Irus Fluids DU-NA are compatible with all seal and paint materials normally specified for use with mineral oils, except those made from natural rubber.

- **Change-over Procedure**

  In order to achieve maximum benefits from the use of Irus DU-NA, it is necessary to completely drain all mineral oil from the hydraulic circuit prior to filling with fresh fluid.

  A detailed changeover procedure can be obtained from your Shell representative.

Typical Physical Characteristics

Properties			Method	Shell Irus Fluids DU-NA
ISO Viscosity Grade			ISO 3448	68
ISO Viscosity Grade			ISO 6743/4	HFDU
Appearance			Visual	Clear Amber
Kinematic Viscosity	@40°C	mm²/s	ASTM D445	67
Kinematic Viscosity	@100°C	mm²/s	ASTM D445	11.6
Viscosity Index			ASTM D2270	181
Acid Number		mgKOH/g		1.8
Density	@20°C	kg/m³	ASTM D4052	932
Pour Point		°C	ASTM D97	-48
Foaming Characteristics - Seq I Tendency/Stability	@24°C		ASTM D892	20/0
Foaming Characteristics - Seq II Tendency/Stability	@93.5°C		ASTM D892	15/0
Foaming Characteristics - Seq III Tendency/Stability after test			ASTM D892	20/0
Load Carrying Capacity, FZG Gear Machine - Fail Stage			CEC L 07 A 85	12
Fire Resistance Flash Point (COC)		°C	ASTM D92	302

These characteristics are typical of current production. While future production will conform to Shell's specification, variations in these characteristics may occur.

Health, Safety & Environment

- Guidance on Health and Safety is available on the appropriate Material Safety Data Sheet, which can be obtained from http://www.epc.Shell.com/
- **Protect the Environment**
  Take used oil to an authorized collection point. Do not discharge into drains, soil or water.

Additional Information

- **Storage**
  Drums must be kept sealed in weatherproof conditions, in order to prevent contamination by water or dust.
- **Advice**
  Product recommendations for applications and specifications not covered here may be obtained from your Shell representative.