



Exxon HyJet V

ExxonMobil Aviation, United States

Fire-Resistant Phosphate Ester Aviation Hydraulic Fluid

Product Description

Exxon HyJet V is a Type V fire-resistant phosphate ester hydraulic fluid, which is superior in thermal and hydrolytic stability to commercially available Type IV hydraulic fluids. Better stability means the extent of fluid degradation in aircraft systems will be less than Type IV fluids, in-service fluid life will be longer, and consequently aircraft operator maintenance costs may be lower.

HyJet V provides excellent high and low temperature flow properties (kinematic viscosities) and rust protection. HyJet V has also demonstrated an improvement over the erosion protection performance afforded by Type IV fluids.

Features and Benefits

Exxon HyJet V offers the following key features and benefits:

Features	Advantages and Potential Benefits
Higher stability than Type IV fluids	Longer fluid life, Lesser need to replace fluid due to degradation, Reduced hydraulic system maintenance costs
Meets Boeing BMS 3-11 and SAE AS1241 Type IV and Type V requirements	Improved flammability characteristics over meeting just the Type V requirements
Low density	Reduced weight of the hydraulic fluid carried by aircraft, Reduced aircraft fuel consumption, Lower operating costs
Excellent rust protection	Reduced risk of equipment damage in the event of major water contamination
Excellent low and high temperature viscosity balance	Precise hydraulic system control and response even during extended range/polar flights, Longer aircraft hydraulic system equipment life
Excellent deposit control	Longer aircraft hydraulic system equipment life, Reduced maintenance costs

Features	Advantages and Potential Benefits
Improved protection against electro-chemical corrosion (erosion)	Protection against servo valve and pump damage
Fully compatible with all approved Type IV and Type V phosphate ester hydraulic fluids	Flexibility in use by airline operators

Applications

Exxon HyJet V is designed for use in commercial aircraft phosphate ester hydraulic systems. It meets the SAE AS1241 requirements and is included in commercial and business airframe manufacturer Qualified Products Lists, as shown below. It is compatible in all proportions with commercial Type IV and Type V phosphate ester aviation hydraulic fluids.

Specifications and Approvals

HyJet V	Meets	Is In Qualified Products List
SAE Aerospace Standard AS1241 Type V	X	Not Applicable
Airbus NSA 307110N Type V	X	X
Boeing BMS 3-11P Type V, Grade A and Grade C	X	X
Boeing-Long Beach DMS 2014H Type 5	X	X
ATR NSA307110N Type V	X	X
Gulfstream 1159SCH302J Type V	X	X

Typical Properties

	Test Method	HyJet V (1)	Limits
Kinematic Viscosity, cSt	ASTM D 445		
at -53.9°C (-65°F)		1350	2000 max
at -26.1°C (-15°F)		132	135 max
at 37.8°C (100°F)		10.6	10.0 - 11.0
at 98.9°C (210°F)		3.6	3.35 - 3.75
at 127.6°C (260°F)		2.6	1.5 min
Viscosity Index	ASTM D 2270	280	
Shear Stability, % Viscosity Drop at 40°C	ASTM D 5621	21	

	Test Method	HyJet V (1)	Limits
Pour Point, °C (°F)	ASTM D 97	<-62 (-80)	-62 (-80) max
Specific Gravity at 25°C/25°C (77°F/77°F)	ASTM D 4052	0.997	0.991 -1.003
Density at 15.6°C (60°F), g/mL (lb/gal)	ASTM D 4052	1.000 (8.35)	
Acid Number, mg KOH/g	ASTM D 974	0.04	0.1 max
Water, Karl Fischer, mass %	ASTM D 6304	0.09	0.2 max
Flammability			
Flash Point, °C (°F)	ASTM D 92	174 (346)	160 (320) min
Fire Point, °C (°F)	ASTM D 92	186 (366)	177 (350) min
Autoignition Point, °C (°F)	ASTM D 2155	>427 (800)	400 (752) min
Foaming Tendency/Stability, mL foam/sec to collapse	ASTM D 892		
Sequence I		32/18	250/100 max
Sequence II		23/13	150/50 max
Sequence III		34/19	450/250 max
Particle Count, NAS 1638 Class	Auto Counter	4	7 max
Chemical Elements, ppm			
Calcium		4	20 max
Potassium		38	48 max
Chlorine		10	50 max
Sodium		1	15 max
Sulfur		51	200 max
Four-Ball Wear, Scar diameter at 75°C/600rpm/1hour, mm	Modified ASTM D 4172		
4 kg		0.21	0.45 max
10 kg		0.26	0.50 max
40 kg		0.63	0.55 – 0.85
Electrical Conductivity at 20°C, microSiemens/cm		0.4	0.3 min
Bulk Modulus, Isothermal secant at 100°F/3000 psi, psi		210,000	
Thermal Conductivity at 40°C, cal/sec/cm ² /°C (Btu/hr/ft ² /°F)		33x10 ⁻⁵ (0.0799)	
Coefficient of Thermal Expansion, 25 to 100°C, per °C (per °F)		0.00086 (0.00048)	
Specific Heat Capacity at 40 °C, cal/g/°C (same as Btu/lb/°F)		0.42	
(1) Values may vary within modest ranges			

Health and Safety

Based on available toxicological information, this product is not expected to produce adverse effects on health when used and handled properly. Information on use and handling, as well as health and safety information, can be found in the Material Safety Data Sheet (MSDS) which can be obtained from your local distributor or via the Internet on <http://www.exxonmobil.com/lubes>.

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