

PSHVE/2022-23/2	Product Specifications Of Synthetic Ester Oil for Transformer Application		Drg. No.	_____																								
			Date	11.08.2022																								
1.0	Application To be used as Transformer oil as an insulating and cooling medium in oil-filled transformers.			Vendor Compliance (Yes/No)																								
2.0	General a) The bidder should be a manufacturer or an authorized dealer of the “Bio-degradable Synthetic Ester Transformer Oil”. b) The transformer insulating fluid should be K3 class as specified in IS13503/ IEC:61039 as per table below and fully biodegradable <table><tr><td colspan="2">Fire Point</td><td colspan="2">Net Calorific value</td></tr><tr><td>K</td><td>>300 °C</td><td>3</td><td><32 MJ/kg</td></tr></table>			Fire Point		Net Calorific value		K	>300 °C	3	<32 MJ/kg																	
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3.0	Specifications: The basic parameter of the transformers fluid shall conform to IS16081 / IEC 61099 Type T1 as below: <table><tr><td>Property</td><td>Permissible values</td></tr><tr><td>Physical</td><td></td></tr><tr><td>Color</td><td>Max 200 Hazen</td></tr><tr><td>Appearance</td><td>Clear free from water and suspended matter and sediment</td></tr><tr><td>Density at 20 °C (kg/dm³)</td><td>Max 1000</td></tr><tr><td>Kinematic viscosity at 40 °C (mm²/s) at –20 °C (mm²/s)</td><td>Max 35 Max 3000</td></tr><tr><td>Flash Point (°C)</td><td>Min 250</td></tr><tr><td>Fire Point (°C)</td><td>Min 300</td></tr><tr><td>Pour point (°C)</td><td>Max-45</td></tr><tr><td>Refractive index at 20°C</td><td>Higher than 300</td></tr><tr><td>Crystallization</td><td>No crystals</td></tr><tr><td></td><td></td></tr></table>			Property	Permissible values	Physical		Color	Max 200 Hazen	Appearance	Clear free from water and suspended matter and sediment	Density at 20 °C (kg/dm³)	Max 1000	Kinematic viscosity at 40 °C (mm²/s) at –20 °C (mm²/s)	Max 35 Max 3000	Flash Point (°C)	Min 250	Fire Point (°C)	Min 300	Pour point (°C)	Max-45	Refractive index at 20°C	Higher than 300	Crystallization	No crystals			
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	Note (1) For untreated liquid as received																							
Note (2) For frequencies {f (Hz)} in the range of 48 Hz to 62 Hz convert values as follows																								
Tan delta [f (50 Hz)= f (Hz)/50 tan Delta [f(Hz)]																								
4.0	Shelf life: The supplier shall furnish the shelf life of the Synthetic Ester oil and also state their storage guidelines. The oil must have minimum one-year shelf life when stored in packed condition from the date of receipt of material.																							
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