PSGSG/ 2020-21/ 017	**Specifications for Electrical Grade MOS2 filled PTFE Bushes**	Drg.No.	
		Date	10.03.2021
		Product	GSM-400

S.NO	BHEL Specification	Vendor compliance	
		YES/NO	Remarks
1.0	**APPLICATION:** PTFE bushes are used as nozzles in gas circuit breakers for effective short circuit current interruption.		
2.0	**SPECIFICATIONS:**		
2.1	**Configuration:** Hollow cylindrical bush.		
2.2	**Material:** MOS_2 filled PTFE PTFE – 99.8% (By weight) Molybdenum disulphide 0.2% (By weight) Color - Grey Highest quality resin shall be used to achieve the required material properties		
2.3	**Dimensions & Quantities:** Ø150±0.5 mm x Ø18 ± 5 mm x 350±1 mm long - 5 Nos.		
2.4	Exposure to high current arcing should not carbonize the material and result in deep penetration burns, impairing the dielectric strength of the material. Quality control check certificate should be furnished.		
2.5	Compression-molded PTFE bush with MoS_2 filler uniformly distributed, free from occlusion and air pockets suitable for High Voltage Applications.		

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		YES/NO	Remarks

2.6	**Properties:** **# Property Value** 1 Density 2.1 to 2.2 gm/cc 2 Water absorption < 0.01% max 3 Melting point 320 to 340°C 4 Continuous use 260 °C 5 Thermal conductivity 6x10-4 cal/sec/cm 6 Compressive strength 50 – 60 Kgf/Cm2 7 Hardness 57+/- 3 8 Elongation 200 to 400 % 9 Tensile modulus >3000 Kgf/cm^2 10 Impact strength ~ 3.0 J/cm 11 Static coefficient of friction <0.1 12 Dielectric break down Strength (0.1 mm sample) >30 kV/mm. 13 Tracking index Min. 600 volts 14 Volume resistivity >10^{18} Ω-cm 15 Dielectric constant 1.9 to 2.1 16 Dissipation factor < 0.0002 17 Flex modulus 350-600 MPa 18 Surface arc resistance > 300 sec		
2.7	This filler shall improve surface hardness, stiffness, and to reduce the starting coefficient of friction and steady-state wear. Its effect on electrical and chemical properties must be negligible.		
2.8	**Tests:** Test reports for the properties like density, elongation, tensile strength shall be furnished along with the supply		

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2.9	**General:** Material must be free from defects, cavities, pin holes and the same shall be ensured by the suppler. Uniform composition of the material shall be ensured. The finished bush shall not have any ovality, bend and the outer surface should be free from dents/visible surface defects. The component shall be free from dirt, grease and moisture.		
2.10	**Packing:** Each bush should be individually wrapped in polyethylene and packed in separate high density, dust free card board boxes. The lot should be supplied in shock proof, unbreakable containers.		