Laboratory	**Indian Rubber Manufacturers Research Association, Plot No.-254/ 1 B, Road No. 16V, Wagle Industrial Estate, Thane, Maharashtra**		
Accreditation Standard	**ISO/IEC 17025: 2005**		
Discipline	**Chemical Testing**	**Issue Date**	**23.06.2014**
Certificate Number	**T-1153**	**Valid Until**	**22.06.2016**
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S.No.	Product / Material of Test	Specific Test Performed	Test Method Specification against which tests are performed	Range of Testing / Limits of Detection
I. RUBBER & SYNTHETIC RUBBER				
1.	**Rubber/ Rubber Product/ Rubber Composites**	Determination of total sulfur content	ASTM D 297 (93) 2006 (Sec. XI)	Upto 25 %
		Determination of Ash by direct method and sulfation method	ASTM D 297 (93) - 2006, (Sec-35 and Sec-37), ISO 247-2006	Upto 50 %
		Determination of percentage of acetone extract	ASTM D 297-2006 (Sec.19)	Upto 50 %
		Effect of liquids (Swelling Test) Determination of volume change, mass change, Dimension change	ASTM D 471-12, IS 3400 (Part VI) 2012, ISO 1817-2011	(-200 to +200 %)
		Identification of rubbers by Chemical method, (Isoprene, Chloroprene, Butyl, Styrene butadine and Acrylonitrile)	ASTM D 297 (93) - 2006 (Sec.52)	Qualitative
		Identification of rubbers by Fourier transform infra red spectroscopy (FTIR), Acrylic rubber (ACM), Chloropolyethylene (CM), Chlorosulfonylpolyethylene (CSM),Ethylene Propylene-diene Rubber(EPDM), Fluorocarbon rubber (FKM), Polychloromethyloxirane (CO),	ISO 4650-2005 and ASTM D 3677-10e1	Qualitative

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S.No.	Product / Material of Test	Specific Test Performed	Test Method Specification against which tests are performed	Range of Testing / Limits of Detection
	Rubber/ Rubber Product/ Rubber Composites	Copolymer of ethylene oxide and chloromethyloxirane (ECO), Polydimethylsiloxane (MQ), Butadiene Rubber (BR), Chloroprene rubber, Isobutylene-isoprene rubber (IIR), Bromo-isobutylene isoprene rubber (BIIR), Chloro-isobutylene isoprene rubber (CIIR),Natural Rubber (NR), Isoprene Rubber (IR), Acrylonitrile butadiene Rubber (NBR), Hydrogenated acrylonitrile butadiene rubber (HNBR), Carboxylic acrylonitrile butadiene Rubber (XNBR), Styrene butadiene rubber (SBR), Hydrogenated Styrene-Butadiene Rubber(HSBR), Block copolymer of styrene and butadiene (TPS-SBS), Polystyrene-poly(ethylene-butylene)-polystyrene (TPS-SEBS), Block copolymer of styrene and isoprene (TPS-SIS), Polystyrene -poly(Ethylene-Propylene)-Polystyrene (TPS-SEPS), Syndiotactic poly(1,2 butadiene) TPZ, Copolyester TPE with a soft segment with ester and ether linkages (TPC-EE) and Their blends)	ISO 4650-2005 and ASTM D 3677-10e1	Qualitative

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S.No.	Product / Material of Test	Specific Test Performed	Test Method Specification against which tests are performed	Range of Testing / Limits of Detection
	Rubber/ Rubber Product/ Rubber Composites	Elemental Analysis-SiO_2 content	ASTM D 297-(93) (2006), Sec-42	Upto 80 %
		Low temperature Gehman Test (T_2, T_5, T_{10}, T_{100}), Stiffness modulus at -30 °C	ISO 1432-1988, ASTM D 1053-92a (2007), IS 3400 (Part 18) 1995	Upto -70ºC Upto 500 mpa
		Low temperature Retraction	ASTM D1329-08 & ISO 2921-2011	Up to -70ºC
		Flammability Test	IS 15652-2006, IS 4355-1977, UL 94-1998	Visual Observations
		Water immersion - change in volume	IS 5382-1985	(-200% to +200 %)
		Water Absorption	IS 5382-1985	Upto 20 %
		Acid Alkali Resistance	IS 937-1981, IS 5382-1985	Visual Observation
		Low Temperature Flexibility & Bitterness point	ASTM D 2137-11, ISO 812-2011	Upto -70ºC
2.	**Rubber/ Polymer/ Rubber Chemicals/ Rubber Composites**	Elemental analysis of metallic elements by Inductively coupled plasma optical emission spectroscopy (ICP OES) Pb, Cr, Cd, Hg, As,Cu, Zn, Mn, Fe,Ca, Mg, Al)	IRMRA/ CHEM/SOP/08 Issue No. 02 Rev.No.03 Dated: 26.12.2013	0.1 ppm to 1%

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S.No.	Product / Material of Test	Specific Test Performed	Test Method Specification against which tests are performed	Range of Testing / Limits of Detection
3.	**Rubber Compounding Ingredients (Accelerators, Antioxidants, Sulfur, Plasticizers)**	Determination of moisture content	IS 7086-1973 (Part I, sec-7) (Reaffirmed 2006)	Upto 10 %
		Determination of melting point	IS 6918 2002 ASTM D 1519 95	60°C to 300°C
		Determination of water soluble ingredients	IS 7086 (Part 1/Sec-8)-1973	Upto10 %
		Determination of loss on ignition	IS 7086 (Part1/Sec-10)-1973	Upto15 %
4.	**Hydrocarbon Oils**	Determination of flash point	IS 1448 (Part 69) 2013, ISO 2592 2000	100°C to 300°C
5.	**Conveyor Belt**	Fire retardance test	IS 3181-1992 (Annex G)	Upto 90 sec.
6.	**Compounded and Uncompounded Rubber, Rubber Products and Plastics**	**Compositional analysis by thermal-techniques**	ASTM E 1131-08, ASTM D 6370-99(2009)	
		Low volatiles content		Upto 90 %
		Polymer content		Upto 90 %
		Filler content		Upto 80 %
		Ash content		Upto 60 %
		Glass transition temperature	ASTM D 7426-2008, ASTM 3418-12	-150ºC to 400ºC

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7.	**Rubber Compounding Ingredients (Rubber Resin)**	Softing point of Resin	ASTM E 28-99 (2009)	30ºC to 200ºC
8.	**Rubber Product Surgical Rubber Gloves**	pH of aqueous extract	IS 4148-1989, Cl. 7.7	2 to 14
9.	**Hose (Rubber, Thermoplastic)**	**Resistance to n-pentane** a) Extractable matter	IS 10908-1991, IS 9573-2012	Upto 25 %
		b) Absorb matter		Upto 25 %
		c) Burning Behavior		Qualitative
		Fuel soluble matter	IS 2396-1988, IS 10733-1983	Upto 25 %
		Loss in mass on Heating	IS 12585-1988	Upto 10 %
		Low Temperature Flexibility	IS 12585-1988, IS 9573-2012, IS 12657-1989, ISO 4672-1988	Visual
		Effect of chemicals on hose lining and cover	IS 443-1975	-200% to +200 %
		Oil Absorption	IS 446-1987	Upto 25 %

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10.	**Rubberized Coir Sheet**	pH Value	IS 8391-1987 Appendix F	2 to 14
		Chloride content	IS 8391-1987 Appendix F	Upto 20 %
		Sulphate content	IS 8391-1987 Appendix F	Upto 20 %
11.	**Rubber Gloves / Rubber Product/ Latex**	Moisture Absorption	IS 4770-1991 Annex D	Upto 20 mg/cm^2
		Nitrogen content	IS 3708 (Part 8) 2005	Upto 30 %
		Ash content	IS 3708 (Part 9) 2005	Upto 50 %
12.	**Rubber Gaskets for Pressure Cooker**	Zinc Oxide content	IS 7466-1994 Annex-A	Upto 10 %
		Heavy Metals	IS 7466-1994 Annex-B	Qualitative
		Performance Test	IS 7466-1994 Annex-C	Qualitative

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