

Advanced Rubber and Elastomer Testing Lab for Physical Properties

Sl No	Product(s) /Material of test	Specific tests			
			ASTM Standard	ISO Standard	IS Standard
1	Natural and Synthetic Cured elastomeric compounds & Rubber Products	Stress @ 100 % Elongation (MPa)	ASTM D 412	ISO 37	IS 3400 (Part I)
2	Natural and Synthetic Cured elastomeric compounds & Rubber Products	Stress @ 200 % Elongation (MPa)	ASTM D 412	ISO 37	IS 3400 (Part I)
3	Natural and Synthetic Cured elastomeric compounds & Rubber Products	Stress @ 300 % Elongation (MPa)	ASTM D 412	ISO 37	IS 3400 (Part I)
4	Natural and Synthetic Cured elastomeric compounds & Rubber Products	Tensile Strength (MPa)	ASTM D 412	ISO 37	IS 3400 (Part I)
5	Natural and Synthetic Cured elastomeric compounds & Rubber Products	Breaking Elongation (%)	ASTM D 412	ISO 37	IS 3400 (Part I)
6	Natural and Synthetic Cured elastomeric compounds & Rubber Products	Tear Strength (Angle specimen)	ASTM D 624	ISO 34-1	IS 3400 (Part XVII)
7	Natural and Synthetic Cured elastomeric compounds & Rubber Products	Thickness (mm)	ASTM D 3767	ISO 23529	-
8	Natural and Synthetic Cured elastomeric compounds & Rubber Products	Hardness (Shore A)	ASTM D 2240	ISO 48-4	IS 3400 (Part XXIII)
9	Natural and Synthetic Cured elastomeric compounds & Rubber Products	Hardness (IRHD)	ASTM D 1415	ISO 48-2	IS 3400 (Part II)
10	Natural and Synthetic Cured elastomeric compounds & Rubber Products	Micro Hardness (m-IRHD)	ASTM D 1415	ISO 48-2	-
11	Natural and Synthetic Cured elastomeric compounds & Rubber Products	Abrasion Loss (mm ³)	ASTM D 5963	ISO 4649	IS 3400 (Part III)
12	Natural and Synthetic Cured elastomeric compounds & Rubber Products	Abrasion Resistance Index	-	ISO 4649	IS 3400 (Part III)
13	Natural and Synthetic Cured elastomeric	Heat Build Up (°C)	ASTM D 623	ISO 4666-3	-

	compounds & Rubber Products				
14	Natural and Synthetic Cured elastomeric compounds & Rubber Products	Tension Set (%)	-	ISO 2285	IS 3400 (Part XIII)
15	Natural and Synthetic Cured elastomeric compounds & Rubber Products	Tensile Set (%)	ASTM D 412	-	-
16	Natural and Synthetic Cured elastomeric compounds & Rubber Products	Storage Modulus (MPa)	ASTM D 5992	ISO 4664-1	-
17	Natural and Synthetic Cured elastomeric compounds & Rubber Products	Loss Modulus (MPa)	ASTM D 5992	ISO 4664-1	-
18	Natural and Synthetic Cured elastomeric compounds & Rubber Products	Tangent of loss angle	ASTM D 5992	ISO 4664-1	-
19	Natural and Synthetic Cured elastomeric compounds	Fatigue to Failure	ASTM D 4482	-	-
20	Natural and Synthetic Cured elastomeric compounds & Rubber Products	Accelerated Ageing (% change in value of measured property) - Test Tube	ASTM D 865	ISO 188	IS 3400 (Part IV)
21	Natural and Synthetic Cured elastomeric compounds & Rubber Products	Degradation by ozone	ASTM D 1149	ISO 1431-1	IS 3400 (Part XX)
22	Natural and Synthetic Cured elastomeric compounds & Rubber Products	Rebound Resilience (%)	ASTM D 7121	ISO 4662	IS 3400 (Part XI)
23	Natural and Synthetic Cured elastomeric compounds & Rubber Products	Density(g/cc)	-	ISO 2781	IS 3400 (Part IX)
24	Natural and Synthetic Cured elastomeric compounds	Air Permeability (m ² /Pa.sec)	-	ISO 2782	IS 3400 (Part XXI)
25	Natural and Synthetic Cured elastomeric compounds	Stress Relaxation (%)	-	ISO 6914	IS 3400 (Part XXIX)
26	Natural and Synthetic Cured elastomeric compounds	Creep in Compression (%)	-	ISO 8013	-
27	Natural and Synthetic Cured elastomeric compounds	Stress relaxation on compression at ambient & elevated temperature (%)	ASTM D 6147	ISO 3384	IS 3400 (Part XXVIII)

28	Natural and Synthetic Cured elastomeric compounds & Rubber Products	Compression set @ ambient and elevated temperature (%)	ASTM D395	ISO 815-1	IS 3400 (Part X -I)
29	Natural and Synthetic Cured elastomeric compounds	Brittleness temperature (°C)		ISO 812	IS 3400 (Part XXV)
30	Natural and Synthetic Cured elastomeric compounds	Temperature Retraction (TR10) (°C)	ASTM D1329	ISO 2921	-
31	Natural and Synthetic Cured elastomeric compounds	Temperature Retraction (TR30) (°C)	ASTM D1329	ISO 2921	-
32	Natural and Synthetic Cured elastomeric compounds	Temperature Retraction (TR50) (°C)	ASTM D1329	ISO 2921	-
33	Natural and Synthetic Cured elastomeric compounds	Temperature Retraction (TR70) (°C)	ASTM D1329	ISO 2921	-
34	Natural and Synthetic elastomeric compounds	Temperature Retraction (TR70) (°C)	ASTM D 5289	ISO 6502	IS 16848
35	Natural and Synthetic elastomeric compounds	Minimum Torque (min.)	ASTM D 5289	ISO 6502	IS 16848
36	Natural and Synthetic elastomeric compounds	Scorch time (min.)	ASTM D 5289	ISO 6502	IS 16848
37	Natural and Synthetic elastomeric compounds	Cure time (min.)	ASTM D 5289	ISO 6502	IS 16848
38	Natural and Synthetic rubbers & elastomeric compounds	Mooney Viscosity (Mooney Units)	ASTM D 1646	ISO 289-1	-
39	Synthetic rubber (E-SBR)	Delta Mooney (Mooney Units)	ASTM D 3346	ISO 289-3	-
40	Natural and Synthetic elastomeric compounds	Cure Index (min.)	ASTM D 1646	ISO 289	-
41	Natural and Synthetic elastomeric compounds	Mooney Scorch (min.)	ASTM D 1646	ISO 289-2	-
42	Natural and Synthetic elastomeric compounds	Loss shear modulus (MPa)	ASTM D 6204	-	-
43	Natural and Synthetic elastomeric compounds	Storage shear modulus (MPa)	ASTM D 6204	-	-
44	Natural and Synthetic elastomeric compounds	Loass factor	ASTM D 6204	-	-
45	Natural and Synthetic elastomeric compounds	Loss shear modulus (MPa)	ASTM D 6601	-	-
46	Natural and Synthetic elastomeric compounds	Storage shear modulus (MPa)	ASTM D 6601	-	-

47	Natural and Synthetic elastomeric compounds	Loss factor	ASTM D 6601	-	-
48	Natural and Synthetic elastomeric compounds	Shear storage modulus G' @ 0.1% (MPa)	ASTM D 8059	-	-
49	Natural and Synthetic elastomeric compounds	Shear storage modulus G' @ 1% (MPa)	ASTM D 8059	-	-
50	Natural and Synthetic elastomeric compounds	Shear storage modulus G' @ 10% (MPa)	ASTM D 8059	-	-
51	Natural and Synthetic elastomeric compounds	Shear storage modulus G' @ 100% (MPa)	ASTM D 8059	-	-
52	Natural and Synthetic elastomeric compounds	Yield Stress	ASTM D 6746	-	-
53	Natural and Synthetic elastomeric compounds	Maximum stress	ASTM D 6746	-	-
54	Natural and Synthetic elastomeric compounds	Yield Elongation	ASTM D 6746	-	-
55	Natural and Synthetic elastomeric compounds	Maximum Elongation	ASTM D 6746	-	-
56	Natural and Synthetic elastomeric compounds	Tensile Green Modulus at 100% Elongation	ASTM D 6746	-	-
57	Natural and Synthetic elastomeric compounds	Percent Stress Decay	ASTM D 6746	-	-
58	Natural and Synthetic Cured elastomeric compounds	Cut Initiation	ASTM D 430	-	IS 3400 (Part VII)
59	Natural and Synthetic Cured elastomeric compounds	Cut Growth	ASTM D 813	-	IS 3400 (Part VIII)
60	Natural and Synthetic Cured elastomeric compounds	Loss in Mass per Unit running distance by using LAT 100	-	ISO 23233	-
61	Natural and Synthetic Cured elastomeric compounds & Rubber Products	Tear Strength (Crescent specimen)	ASTM D 624	ISO 34 - 1	IS 3400 (Part XII)
62	Natural and Synthetic Cured elastomeric compounds & Rubber Products	Tear Strength (Delft specimen)	-	ISO 34 - 2	-
63	Natural and Synthetic Cured elastomeric compounds & Rubber Products	Accelerated Ageing (% change in value of measured property) - Air Oven	ASTM D 573	-	-
64	Natural and Synthetic Cured elastomeric compounds & Rubber Products	Compression Test at Specified Deflection (kPa)	ASTM D 575	-	-

65	Natural and Synthetic Cured elastomeric compounds & Rubber Products	Compression Test at Specified Force (%)	ASTM D 575	-	-
66	Natural and Synthetic Cured elastomeric compounds & Rubber Products	Effect of Liquids(%)	ASTM D 471	ISO 1817	IS 3400 (Part VI)
67	Natural and Synthetic Cured elastomeric compounds	Degradation by ozone (Triangular Specimens)	ASTM D 1171	-	-
68	Natural and Synthetic Cured elastomeric compounds	Determination of force decay (SR) in compression	ASTM D 6147	-	-
69	Natural and Synthetic Cured elastomeric compounds	Compression set @low temperature (%)	ASTM D 1229	ISO 815-II	IS 3400 (Part X - II)
70	Natural and Synthetic rubbers & elastomeric compounds	Mooney Viscosity (Mooney Units) - NR	-	-	IS 3660 (Part VII)
71	Natural and Synthetic rubbers & elastomeric compounds	Mooney Viscosity (Mooney Units) - SR	-	-	IS 11720 (Part III)
72	Natural and Synthetic rubbers & elastomeric compounds	Dimensions	ASTM D 3767	-	-
73	Rubber Products - Tubes - Specification	Determination of Tensile Strength of Tubes for Pneumatic tyres - Specification IS 13098 (MPa)	-	-	IS 3400 (Part I)
74	Rubber Products - Tubes - Specification	Determination of Elongation at Break of Tubes for Pneumatic tyres - Specification IS 13098 (%)	-	-	IS 3400 (Part I)
75	Rubber Products - Tubes - Specification	Determination of Tension Set properties of Tubes for Pneumatic tyres - Specification IS 13098	-	-	IS 13098 (Annex B)
76	Rubber Products - Tubes - Specification	Determination of Accelerated ageing Properties of Tubes for Pneumatic tyres - Specification IS 13098	-	-	IS 3400 (Part IV)
77	Rubber Products - Flaps - Specification	Determination of Tensile Strength of flaps for Pneumatic tyres - Specification IS 9168	-	-	IS 3400 (Part I)
78	Rubber Products - Flaps - Specification	Determination of Elongation at Break of flaps for Pneumatic tyres - Specification IS 9168	-	-	IS 3400 (Part I)
79	Rubber Products - Flaps - Specification	Determination of Hardness of flaps for Pneumatic tyres - Specification IS 9168	-	-	IS 3400 (Part II)
80	Rubber Products - Flaps - Specification	Determination of Accelerated ageing Properties of flaps for Pneumatic tyres - Specification IS 9168	-	-	IS 3400 (Part IV)
81	Rubber Products - Tubings - Specification	Determination of Diameter of Rubber Tubings for general Purposes - Specification IS 637	-	-	IS 637
82	Rubber Products - Tubings - Specification	Determination of Thickness of Rubber Tubings for general Purposes - Specification IS 637	-	-	IS 637
83	Rubber Products - Tubings - Specification	Determination of Tensile Strength of Rubber Tubings for general Purposes - Specification IS 637	-	-	IS 3400 (Part I)

84	Rubber Products - Tubings - Specification	Determination of Elongation at Break of Rubber Tubings for general Purposes - Specification IS 637	-	-	IS 3400 (Part I)
85	Rubber Products - Tubings - Specification	Determination of Accelerated ageing Properties of Rubber Tubings for general Purposes - Specification IS 637	-	-	IS 3400 (Part IV)
86	Rubber Products - Tubings - Specification	Determination of Tension Set of Rubber Tubings for general Purposes - Specification IS 637	-	-	IS 637
87	Rubber Products - Tubings - Specification	Determination of Resistance to Ageing under tension of Rubber Tubings for general Purposes - Specification IS 637	-	-	IS 637
88	Rubber Products - Tubings - Specification	Determination of Leakage of Rubber Tubings for general Purposes - Specification IS 637	-	-	IS 637
89	Rubber Products - Hot water hose - Specification	Determination of Dimensions of Hot water Hose of rubber - Specification IS 5821	-	-	IS 443
90	Rubber Products - Hot water hose - Specification	Determination of Tensile Strength of Hot water Hose of rubber - Specification IS 5821	-	-	IS 3400 (Part I)
91	Rubber Products - Hot water hose - Specification	Determination of Elongation at Break of Hot water Hose of rubber - Specification IS 5821	-	-	IS 3400 (Part I)
92	Rubber Products - Hot water hose - Specification	Determination of Accelerated ageing Properties of Hot water Hose of rubber - Specification IS 5821	-	-	IS 3400 (Part IV)
93	Rubber Products - Hot water hose - Specification	Determination of Adhesion of Hot water Hose of rubber - Specification IS 5821	-	-	IS 3400 (Part V)
94	Rubber Products - Hot water hose - Specification	Determination of Hydraulic Pressure resistance of Hot water Hose of rubber - Specification IS 5821	-	-	IS 443
95	Rubber Products - Hot water hose - Specification	Determination of Proof Pressure resistance of Hot water Hose of rubber - Specification IS 5821	-	-	IS 443
96	Rubber Products - Hot water hose - Specification	Determination of Resistance to hot water of Hot water Hose of rubber - Specification IS 5821	-	-	IS 5821 (Appendix B)
97	Rubber Products - Hot water hose - Specification	Determination of Water absorption of Hot water Hose of rubber - Specification IS 5821	-	-	IS 5821 (Appendix C)
98	Rubber Products - Gaskets - Specification	Determination of Hardness of Rubber gaskets for Pressure Cookers - Specification IS 7466	-	-	IS 3400 (Part II)
99	Rubber Products - Gaskets - Specification	Determination of Tensile Strength of Rubber gaskets for Pressure Cookers - Specification IS 7466	-	-	IS 3400 (Part I)
100	Rubber Products - Gaskets - Specification	Determination of Elongation at Break of Rubber gaskets for Pressure Cookers - Specification IS 7466	-	-	IS 3400 (Part I)
101	Rubber Products - Gaskets - Specification	Determination of Accelerated ageing Properties of Rubber gaskets for Pressure Cookers - Specification IS 7466	-	-	IS 3400 (Part IV)
102	Rubber Products - Gaskets - Specification	Determination of Compression set of Rubber gaskets for Pressure Cookers - Specification IS 7466	-	-	IS 3400 (Part X)
103	Rubber Products - Gaskets - Specification	Determination of Total Zinc Oxide of Rubber gaskets for Pressure Cookers - Specification IS 7466	-	-	Annex A
104	Rubber Products - Gaskets - Specification	Determination of Heavy Metals of Rubber gaskets for Pressure Cookers - Specification IS 7466	-	-	Annex B

105	Rubber Products - Hoses - Specification	Determination of Dimensions of Rubber Hose for Liquefied Petroleum Gas (LPG) - Specification (Industrial) IS 9573 Part 1	-	-	IS 443
106	Rubber Products - Hoses - Specification	Determination of Tensile Strength of Rubber Hose for Liquefied Petroleum Gas (LPG) - Specification (Industrial) IS 9573 Part 1	-	-	IS 3400 (Part I)
107	Rubber Products - Hoses - Specification	Determination of Elongation at Break of Rubber Hose for Liquefied Petroleum Gas (LPG) - Specification (Industrial) IS 9573 Part 1	-	-	IS 3400 (Part I)
108	Rubber Products - Hoses - Specification	Determination of Accelerated ageing Properties of Rubber Hose for Liquefied Petroleum Gas (LPG) - Specification (Industrial) IS 9573 Part 1	-	-	IS 3400 (Part IV)
109	Rubber Products - Hoses - Specification	Determination of Resistance of Lining to n-pentane of Rubber Hose for Liquefied Petroleum Gas (LPG) - Specification (Industrial) IS 9573 Part 1	-	-	Annex A
110	Rubber Products - Hoses - Specification	Determination of Adhesion of Rubber Hose for Liquefied Petroleum Gas (LPG) - Specification (Industrial) IS 9573 Part 1	-	-	IS 3400 (Part XXIV)
111	Rubber Products - Hoses - Specification	Determination of Low Temperature Flexibility of Rubber Hose for Liquefied Petroleum Gas (LPG) - Specification (Industrial) IS 9573 Part 1	-	-	IS 9573 (Part I)
112	Rubber Products - Hoses - Specification	Determination of Flexibility of Hose of Rubber Hose for Liquefied Petroleum Gas (LPG) - Specification (Industrial) IS 9573 Part 1	-	-	IS 9573 (Part I)
113	Rubber Products - Hoses - Specification	Determination of Ozone Resistance of Rubber Hose for Liquefied Petroleum Gas (LPG) - Specification (Industrial) IS 9573 Part 1	-	-	IS 9573 (Part I)
114	Rubber Products - Hoses - Specification	Determination of Proof pressure test of Rubber Hose for Liquefied Petroleum Gas (LPG) - Specification (Industrial) IS 9573 Part 1	-	-	IS 443
115	Rubber Products - Hoses - Specification	Determination of Bursting pressure of Rubber Hose for Liquefied Petroleum Gas (LPG) - Specification (Industrial) IS 9573 Part 1	-	-	IS 443
116	Rubber Products - Hoses - Specification	Determination of Electrical Continuity Test of Rubber Hose for Liquefied Petroleum Gas (LPG) - Specification (Industrial) IS 9573 Part 1	-	-	IS 9573 (Part I)
117	Rubber Products - Hoses - Specification	Determination of Burning Behaviour of Rubber Hose for Liquefied Petroleum Gas (LPG) - Specification (Industrial) IS 9573 Part 1	-	-	IS 9573 (Part I)
118	Rubber Products - Hoses - Specification	Determination of Dimensions of Rubber Hose for Liquefied Petroleum Gas (LPG) - Specification (Domestic and Commercial) IS 9573 Part 2	-	-	IS 443
119	Rubber Products - Hoses - Specification	Determination of Tensile Strength of Rubber Hose for Liquefied Petroleum Gas (LPG) - Specification (Domestic and Commercial) IS 9573 Part 2	-	-	IS 3400 Part 1
120	Rubber Products - Hoses - Specification	Determination of Elongation at Break of Rubber Hose for Liquefied Petroleum Gas (LPG) - Specification (Domestic and Commercial) IS 9573 Part 2	-	-	IS 3400 Part 1
121	Rubber Products - Hoses - Specification	Determination of Accelerated ageing Properties of Rubber Hose for Liquefied Petroleum Gas (LPG) - Specification (Domestic and Commercial) IS 9573 Part 2	-	-	IS 3400 (Part IV)
122	Rubber Products - Hoses - Specification	Determination of Resistance of Lining to n-pentane of Rubber Hose for Liquefied Petroleum Gas (LPG) - Specification (Domestic and Commercial) IS 9573 Part 2	-	-	Annex A
123	Rubber Products - Hoses - Specification	Determination of Adhesion of Rubber Hose for Liquefied Petroleum Gas (LPG) - Specification (Domestic and Commercial) IS 9573 Part 2	-	-	IS 3400 (Part XXIV)
124	Rubber Products - Hoses - Specification	Determination of Low Temperature Flexibility of Rubber Hose for Liquefied Petroleum Gas (LPG) - Specification (Domestic and Commercial) IS 9573 Part 2	-	-	IS 9573 (Part II)

125	Rubber Products - Hoses - Specification	Determination of Flexibility of Hose of Rubber Hose for Liquefied Petroleum Gas (LPG) - Specification (Domestic and Commercial) IS 9573 Part 2	-	-	IS 9573 (Part II)
126	Rubber Products - Hoses - Specification	Determination of Ozone Resistance of Rubber Hose for Liquefied Petroleum Gas (LPG) - Specification (Domestic and Commercial) IS 9573 Part 2	-	-	IS 9573 (Part II)
127	Rubber Products - Hoses - Specification	Determination of Proof pressure test of Rubber Hose for Liquefied Petroleum Gas (LPG) - Specification (Domestic and Commercial) IS 9573 Part 2	-	-	IS 443
128	Rubber Products - Hoses - Specification	Determination of Bursting pressure of Rubber Hose for Liquefied Petroleum Gas (LPG) - Specification (Domestic and Commercial) IS 9573 Part 2	-	-	IS 443
129	Rubber Products - Hoses - Specification	Determination of Electrical Continuity Test of Rubber Hose for Liquefied Petroleum Gas (LPG) - Specification (Domestic and Commercial) IS 9573 Part 2	-	-	IS 9573 (Part II)
130	Rubber Products - Hoses - Specification	Determination of Grip strength Test of Rubber Hose for Liquefied Petroleum Gas (LPG) - Specification (Domestic and Commercial) IS 9573 Part 2	-	-	IS 9573 (Part II)
131	Rubber Products - Hoses - Specification	Determination of Burning Behaviour of Rubber Hose for Liquefied Petroleum Gas (LPG) - Specification (Domestic and Commercial) IS 9573 Part 2	-	-	IS 9573 (Part II)