



HARI SHANKAR SINGHANIA ELASTOMER & TYRE RESEARCH INSTITUTE
HASETRI
[AN NABL (ISO / IEC 17025 : 2005) ACCREDITED LABORATORY]

Method No.	TEST PARAMETER	Method No.	TEST PARAMETER
	SPECIAL TEST FOR ANALYTICAL	HV - 3	- DIN Abrasion
HA - 1	- TGA at 40 Deg. C/MIN	HV - 4 A	- Goodrich Heat Build-up
HA - 2 A	- DSC at 10 Deg. C/MIN	HV - 4 B	- Goodrich DMA
HA - 2 B	- DSC at 10 Deg. C/MIN, Low Temp.	HV - 4 C	- Goodrich Blow Out Test
HA - 3 A	- FTIR (Fourier Transformed Infrared Spectrophotometer)	HV - 5 A	- Monsanto FTFT at RT
HA - 3 B	- FTIR - By Pyrolysis	HV - 5 B	- Monsanto FTFT at HT
HA - 4 A	- Optical Microscopy	HV - 6 A	- De-Mattia Flex-Cut Initiation
HA - 4 B	- Optical Microscopy, Hot Stage Analysis	HV - 6 B	- De-Mattia Flex-Cut Growth
HA - 6	- Molecular Weight of Polymer by GPC	HV - 7 A	- Tension/Permanent Set at RT Using Zwick UTS
HA - 8	- Extraction	HV - 7 B	- Tension/Permanent Set at HT
HA - 9	- TLC	HV - 8	- Swell Index
HA - 10	- Volume Fraction of rubber	HV - 9 A	- Carrying out Ageing at one Temp.(1 Day)
	ANALYSIS OF RUBBER PRODUCT	HV - 9 B	- Carrying out Ageing at one Temp.(3 Days)
HA - 11	- Polymer Identification	HV - 9 C	- Carrying out Ageing at one Temp.(7 Days)
HA - 12	- % Rubber Hydrocarbon	HV - 10	- Ozone Resistance test at Specified Temp. for 24 Hrs
HA - 13	- % Carbon Black	HV - 11 A	- Analysis of Tube (Dimension & Physicals) - V
HA - 14	- % Volatiles	HV - 11 B	- Analysis of Tube (Dimension & Physicals) - C
HA - 15	- % Ash	HV - 11 C	- Tube Valve Adhesion
HA - 16	- Semi Quantitative Ash Analysis	HV - 11 D	- Tube splice strength by De-Mattia Flexometer
HA - 17	- Plasticiser Identification	HV - 11 E	- Details analysis of Tube Valves
HA - 18	- Qualitative Antioxidant Analysis	HV - 12 A	- Analysis of Flap (Dimension & Phy)-V
HA - 19	- Carbon Chain Distribution of Wax by GC	HV - 12 B	- Analysis of Flap (Dimension & Phy)-C
HA - 20	- Purity of Rubber Chemicals by GC	HV - 13 A	- Sample Preparation by Splitting. M/C
HA - 21	- Benzene & Aromatic Content of Solvent Naphtha by GC	HV - 13 B	- Sample Preparation by Crushing
HA - 22	- Quant.Estmn. of 6PPD in Rubber Vulcanizate by HPLC	HV - 13 C	- Sample Preparation by Drilling/Grinding
HA - 23	- Assay of Rubber Chemicals by HPLC	HV - 13 D	- Sample Preparation from Finished Products
HA - 24	- Characterisation by UV-Vis	HV - 14 A	- Rebound Resilience -RT
HA - 25	- Toluene Discoloration of C-Black	HV - 14 B	- Rebound Resilience -HT
HA - 26	- Surface Area of Materials (powder)	HV - 15 A	- Dynamic Properties - RT
HA - 27	- Determination of S & N by NCS Analyser	HV - 15 B	- Dynamic Properties - HT
HA - 28	- Material Identification by GC-MS	HV - 15 C	- Dynamic Properties - LT
HA - 30	- SEM	HV - 15 D	- Glass Transition by DMA
HA - 31	- SEM - EDS	HV - 15 E	- Frequency Temp. Superposition
HA - 32	- ICP-OES	HV - 16	- Gas Permeability - HT
	TESTING OF UNVULCANISED RAW RUBBER	HV - 16 A	- Gas Permeability - RT
HU - 1 A	- Mooney Viscosity by MV 2000 E	HV - 17	- Determination of Chipping & Chunking
HU - 1 B	- Delta Mooney by MV 2000 E	HV - 18	- Determination of Tyre Aging Characteristics
HU - 1 C	- Mooney Scorch by MV 2000 E	HV - 19 A	- Crack Growth - RT by Flexing Machine
HU - 2	- Rheometry study by MDR 2000 E	HV - 19 B	- Crack Growth - HT by Flexing Machine
HU - 4	- Dispersion by Disperse Grader	HV - 19 C	- De-Mattia - HT
HU - 5	- Extrusion/Die swell property by Brabender Plasticorder	HV - 20	- Hyper Elastic Properties
HU - 6	- Banbury Mixing	HV - 21	- Quasi-Static Properties
HU - 7	- Mill Mixing	HV - 22	- Determination of Bulk Tear
HU - 8	- Moulding	HV - 23	- Compression Mode stress - Strain
HU - 9	- Mixing in Brabender	HV - 24	- Compression Mode stress - Strain - HT
HU - 10 A	- Analysis by RPA : Strain Sweep	HV - 25	- Pure Shear Hyper Elastic Properties
HU - 10 B	- Analysis by RPA : Frequency Sweep	HV - 26	- Quadruple Shear
HU - 10 C	- Analysis by RPA : Temperature Sweep	HV - 27 A	- Compression Set - RT
HU - 10 D	- Analysis by RPA : Matrix Sweep	HV - 27B	- Compression Set - HT
HU - 10 E	- Analysis by RPA : Cure Study	HV - 28	- Step Loading Unloading
HU - 10 F	- Analysis by RPA : Cure Simulation		LATEX TESTING
HU - 11	- Tack Study	HRL - 1	- % Total Solid Content
HU - 12	- P.R.I.	HRL - 2	- % Dry rubber Content
	VULCANISED RUBBER	HRL - 3	- pH
HV - 1 A	- Tensile Properties at RT	HRL - 4	- Brookfield Viscosity
HV - 1 B	- Tensile Properties at HT	HRL - 5	- Mooney Viscosity of Contained Polymer
HV - 1 C	- Tear Properties at RT	HRL - 6	- Total Alkalinity
HV - 1 D	- Tear Properties at HT	HRL - 7	- Metal Content (Cu, Mn, Mg, Fe, Ni, Co, Cr)
HV - 2 A	- Hardness (IRHD)	HRL - 8	- Surface Tension
HV - 2 B	- Hardness (Shore - A)	HRL - 9	- Coagulum Content

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	LATEX TESTING	HC - 22	- Cyclohexane Insoluble
HRL - 10	- Chemical Stability	HC - 23	- Moisture by Karl Fisher
HRL - 11	- Specific Gravity	HC - 24	- High Temperature Stability of Insoluble Sulphur
HRL - 12	- Bound Styrene of SBR Latex	HC - 25	- Moisture by Azeotropic Distillation
HRL - 13	- KOH Number of NR Latex	HC - 26	- Saponification No.
HRL - 14	- Volatile Fatty Acid Number of NR Latex	HC - 27	- Aniline Point
	FABRIC TESTING	HC - 28	- Assay of MBT
HRF - 1	- Strength Properties	HC - 29	- Assay of DPG
HRF - 2	- Linear Density & Moisture	HC - 30	- Assay of TBBS/CBS/NOBS/DCBS
HRF - 3	- Shrinkage	HC - 31	- Free MBT
HRF - 4	- Twist	HC - 32	- Assay of MBTS
HRF - 5	- Gauge	HC - 33	- Saybolt Viscosity
HRF - 6	- H-Adhesion or Peel Adhesion	HC - 34	- Sieve Residue of powdery material
HRF - 7	- Heat durability (only ageing)	HC - 35	- Heat loss
HRF - 8 A	- Dip pick up of Nylon Cord	HC - 36	- Softening pt.
HRF - 8 B	- Dip pick up of Polyester Cord	HC - 37	- Melting pt.
HRF - 8 C	- Dip pick up of Rayon Cord	HC - 38	- Distillation range
HRF - 8 D	- Dip pick up of Glass Fiber	HC - 39	- Congealing pt. of Wax
HRF - 9	- Relative dip pickup for aramid	HC - 40	- Bulk attrition of C-black
HRF - 10	- Spin finish content	HC - 41	- Sieve residue of C-black
HRF - 11	- Crystallinity of Fabric	HC - 42	- Pour density of C-black
HRF - 12	- Melting Point of Fabric	HC - 43	- Defects in Bead wire coating
HRF - 13	- Identification of Fabric	HC - 44	- Freezing point
HRF - 14	- Lay Length & Lay Direction	HC - 45	- UV Analysis of Rubber Chemicals
HRF - 15	- Torsion Test	HC - 46	- Sp.gravity by Sp. Gravity Bottle
HRF - 16	- Reverse Bend Test	HC - 47	- Sp.gravity by Hydrometer
HRF - 17	- Coating Thickness	HC - 48	- Sp.gravity by liquid displacement
HRF - 18	- Humidity Ageing (24 Hrs)	HC - 49	- DBP absorption of C-black
HRF - 19	- Straightness	HC - 50	- Water settling Characteristics of Clay
HRF - 20	- Residual Torsion	HC - 51	- Flash & Fire pt.
HRF - 21	- Stiffness	HC - 52	- CA,CP,CN of Processing Oil
HRF - 22	- CT Cord Fatigue Test	HC - 53	- Iodine no.
	CHEMICAL TESTING	HC - 54	- Acid No.
HC - 1	- Brookfield Viscosity	HC - 55	- Oil content of oiled sulphur
HC - 2	- Identification of S-Bloom	HC - 56	- Organic acid & soap
HC - 3	- A/O by TLC	HC - 57	- Methylol content
HC - 4	- Doctor Test of Solvent	HC - 58	- Acidity as % Free acid
HC - 5	- Acid insoluble	HC - 59	- Oil content of oil extended polymer
HC - 6	- Total Solid	HC - 60	- Bound styrene by GC Analysis
HC - 7	- Solubility	HC - 61	- Iodine Adsorption No. of C-black
HC - 8	- pH	HC - 62	- Clay/gel Analysis of Processing Oil
HC - 9	- Solvent Extraction	HC - 63	- Drop melting pt. of wax
HC - 10	- Ash	HC - 64	- RI of Liquid Sample
HC - 11	- Det. of Zn (Chem)	HC - 65	- Bound Styrene
HC - 12	- Sulphur content by CS ₂	HC - 66	- Micro Structure of Polybutadiene Rubber
HC - 13	- Plating weight Wire Cords	HC - 67	- Pour point of oil
HC - 14	- Ignition Loss	HC - 68	- Volatile matter in NR
HC - 15	- Chemical Digestion	HC - 69	- Pellet Hardness of C-black
HC - 16	- Moisture Content by IR Moisture Analyser	HC - 70	- Titer Value of Stearic Acid
HC - 17	- VP Content of VP latex	HC - 71	- Proximate Analysis of Coal
HC - 18	- Silica Content of Silicon Dioxide	HC - 72	- Refractive Index
HC - 19	- Dirt in NR	HC - 73	- Micro Structure of Solution SBR
HC - 20	- Nitrogen content of NR	HC - 74	- Calorific Value Determination
HC - 21	- Cobalt content (Chemical)		

Contact Address :

Jaykaygram - 313 342, Kankroli, Dist. Rajsamand (Rajasthan) INDIA
Ph : (02952) 232 019 / 232 079 ; Fax : 91-2952 - 232030 / 232 018 ; E-Mail : library@hasetri.com
Website : www.hasetri.com