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55 YEARS

Bombay Chemical & Rubber Products

"United in diversity, bonded
by friendship: India and Japan."

JMF CELEBRATING 20+YEARS

JMF Performance Materials Pvt. Ltd.

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BOMBAY CHEMICAL & RUBBER PRODUCTS

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Synthetic Rubber

1	Acylonitrile Butadine Rubber (NBR)	ENEOS Materials Corporation, Japan
2	SKYPRENE Polychloroprene Rubber (CR)	TOSOH Corporation, Japan
3	SKYPRENE (CR) Latex Polychloroprene Rubber	TOSOH Corporation, Japan
4	TOSO CSM Chlorosulfonated Polyethylene (CSM/CSP)	TOSOH Corporation, Japan
5	Emulsion Styrene Butadine Rubber (E-SBR)	ENEOS Materials Corporation, Japan
6	Emulsion Styrene Butadine Rubber (E-SBR)	BST Elastomers Co.Ltd, Thailand
7	RB Syndiaotactic 1, 2- Polybutadine	ENEOS Materials Corporation, Japan
8	Butyl (IIR)/BromoButyl (BIIR)/ChloroButyl (CIIR)/ Polyisoprene Rubber (IR)	ENEOS Materials Corporation, Japan
9	Polyacrylic/ Hi-Temp Polyacrylic Rubber (ACM/ HT-ACM)	TOA Resin Corporation, Taiwan
10	Chlorinated Polyethylene (CPE)	Heartychem Corporation, China
11	Polylsobutylene (PIB)	ENEOS Corporation, Japan
12	Reprocessed ESBR- SSBR-NDBR	DIH WEI Industrial Company Ltd., Taiwan
13	Reprocessed NBR-EPDM-IIR	DIH WEI Industrial Company Ltd., Taiwan
14	Excellink TPV	ENEOS Materials Corporation, Japan
15	WV-007 (NBR-PVC)	Elastomix Co.Ltd., Japan
16	Eposxidised Natural Rubber (ENR)	Muang Mai Guthrie Public Co., Ltd., Thailand
17	Sepoflex CSM (Chlorosulphonated Polyethylene Latex)	Sumitomo Seika Co.Ltd. Japan

Resin

19	CI Resin G-90 Coumarone Indene Resin	Nitto Chemical Co. Ltd., Japan
20	T-REZ RA-100 Aliphatic Hydrocarbon Resin C5	ENEOS Materials Corporation, Japan

Speciality Fillers

22	**Cabot** (Evolve Sustainable Solutions)	Cabot Corporation, Indonesia
23	**Cabot** (Reinforcing Carbons For Industrial Rubber Products)	Cabot Corporation, Indonesia
24	**Tosoh Silica** Amouphous Silicon Dioxide	TOSOH Silica Corporation, Japan.
25	**Genan Micronised Powder**	Genan Inc.
27	**ImerFlex T 10D** Micronised Talc, Multifunctional Filler (Rubber Compound)	IMERYS Talc, China
28	**ImerFlex T 10D** Micronised Talc, Multifunctional Filler (Auto Tubes & Hoses)	IMERYS Talc, China
29	**ImerFlex HAR T 20** Rubber Application	IMERYS Talc, China
30	**Goldstar** High Purity Magnesium Carbonate ($MgCO_3$)/Transperent Filler for Latex	Konoshima Chemical Co. Ltd., Japan
31	**OP 200R** Calcined Kaolin	Imerys, France/Japan/China
32	**Precipitated Barium Sulphate (BaSO4)**	Sakai Chemical, Japan
33	**Wollastonite A High performance Filler for FKM Compound (Calcium Meta Silicate)**	Wolkem Industries Limited, India
34	**Hisorb 1 & 4A** Hydrotalcite Corrosion Inhibitor	Sudarshan Chemical Industries Limited, India
35	**Magnesium Compounds** for Thermal Conducting Filler	Konoshima Chemical Co. Ltd., Japan

Flame Retardant Fillers and Chemicals

37	**Magseeds** Magnesium Hydroxide $(MgOH)_2$ Non-Halogen FR for Cable, Plastic & Rubber	Konoshima Chemical Co. Ltd., Japan
38	**ATH** Alumina Trihydrate	Hindalco Industreis Limited, India

Bonding Agent

40	**Metaloc S7** Rubber to Metal Bonding Agent for Fluoroelastomer	Toyokagaku Kenkyusho Co. Ltd., Japan
41	**Metaloc C12** Cured Rubber to Metal Bonding Agent	Toyokagaku Kenkyusho Co. Ltd., Japan

Crosslinking Agent, Co-Agent & Anti Reversion Agent

43	**INNOVOH** Calcium Hydroxide	Singleton Birch, UK
44	**GP 210/GP 210 MB/ GP 213** Diamine Cure for HT-ACM & AEM	Cymer LLC, USA
45	**PDM** Anti Reversion Agent	Yasho Industries Limited, India
46	**NS Soap** Sodium Stearate (Curing Agent ACM)	NOF Corporation, Japan
47	**SK 1** Potassium Stearate (Curing Agent for ACM)	Kao Corporation, Japan
48	**RB** Vulcanising Co-Agent (Booster)	ENEOS Materials Corporation, Japan

Compounding Ingrediants

50	**Starmag 150** Light Magnesium Oxide	Konoshima Chemical Co. Ltd., Japan
51	**Starmag L** Low Active MgO	Konoshima Chemical Co. Ltd., Japan
52	**Splender R-2000 & R-3000**	Kao Corporation, Japan
53	**Sanwax 171P** Low Molecular Weight Polyethylene Wax	Sanyo Chemical Industries, Japan
55	**Sunnoc** Special Microcrystalline Wax	Ouchi Shinko Chemical Industrial Co. Ltd.,
56	**Innovox-95** Calcium Oxide (Mineral Oil Coated)	Singleton Birch, UK
57	**Elastoset** Curing Stabilizer to Improve Compression Set of EPDM Rubber	Allestomer Polykemv Pvt. Ltd.
59	**Sunpar 2280** High Viscosity Paraffinic Oil	Japan Sun Oil Company Limited, Japan
63	**Phosphanol RL210** Processing Agent for HT-ACM & AEM	Toho Chemical Industry Co. Ltd., Japan
64	**Farmin 80** Internal Mold Release Agent HT-ACM & AEM	Kao Corporation, Japan
65	**Carnauba Wax** Distilled Powder	JMF Performance Materials Pvt. Ltd.
66	**MasterMix PN280** Premix of Liquid NBR 65% & Silica	JMF Performance Materials Pvt. Ltd.

Plasticizers

68	**RS107 RS700 RS705 RS735 RS759 Rs1000 C9N Pn6122, C-8BF** High Heat & Cold Resistance Polymeric Plasticizers	Adeka Corporation, Japan
69	**CCP D190** Low Temperature Phthalate Free Polyester Plasticizer	Chang Chiang Chemical, Taiwan
70	**PN 5090** Plasticizer for Fluoroelasomer	Adeka Corporation, Japan

Rubber Chemicals

Pigments

Other Products

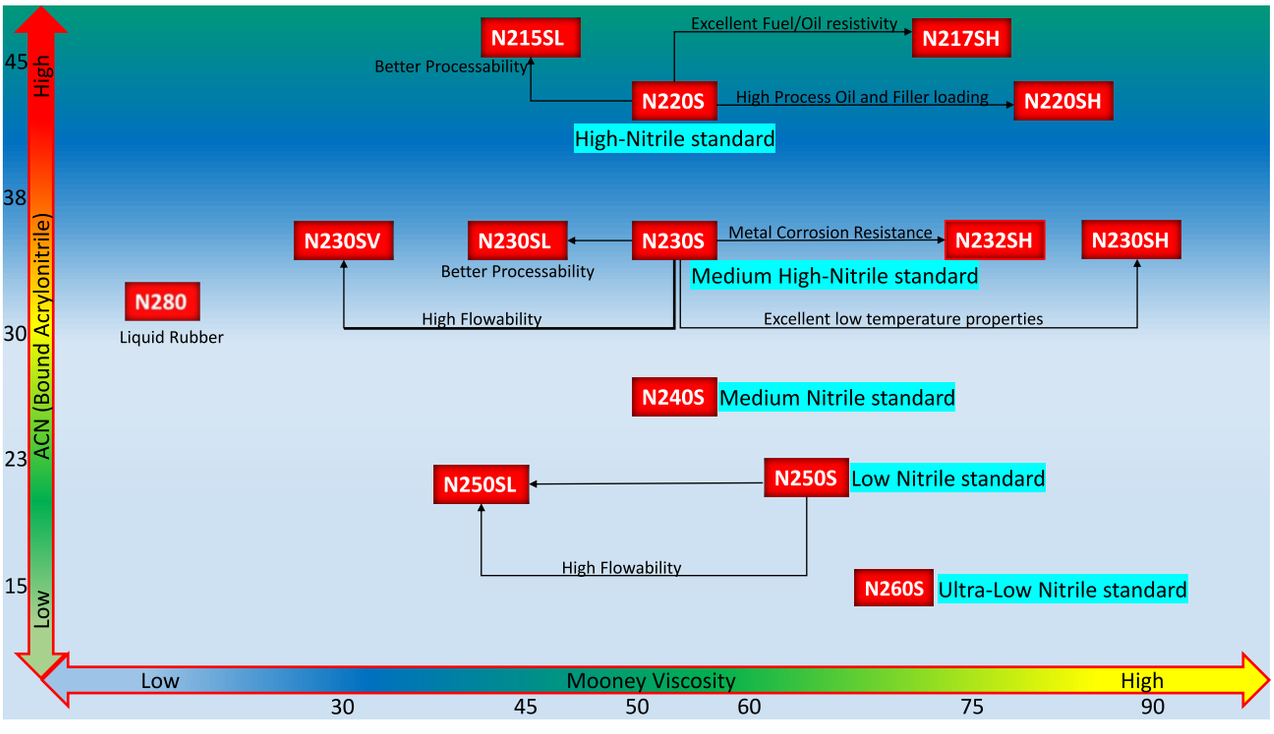
Sustainable Materials

Synthetic Rubber

Synthetic Rubber

Acrylonitrile Butadiene Rubber (NBR Rubber)

Narrow Molecular Weight Distribution, Controlled ACN content, Non Staining Good Processibility with less variation in Mooney Viscosity Compared to other Commercially available Grades. This facilitates Smooth Mixing and less Compound Variation and Produces Parts with consistent quality & less rejection.



Grade	ACN %	Mooney Viscosity $ML_{(1+4)}100°C$	Application
N217SH	48	70 - 80	Products with High Oil & Solvent Resistant such as Packing Gaskets, Oil Seals, Fuel Hoses, High Pressure Hoses, Printing Rolls, Blankets, Safety Shoe Sole & Spinning Parts.
N215SL	48	40 - 50	
N220SH	41	75 - 90	
N220S	41	50 - 60	
N232SH	35	75 - 80	Recommended for Industrial, Automotive Application. Well Suited for Graphic Arts, Rolls, Footwear Spinning Parts, Linings, Safety Shoes, Diaphragm, Packing, Oil Seals & Oil Resistance Hose.
N230SH	35	77 - 93	
N230S	35	50 - 60	
N230SL	35	40 - 48	
N230SV	35	30 - 35	
N240S	26	52 - 60	Aircraft Oil Resistant & Extreme Cold Water-Resistant Products Such as Rolls, Hoses, Packing etc.
N250S	20	60 - 70	
N250SL	19.5	40 - 45	
N260S	15	65- 75	
N280 (Liquid)	32	Brookfield 5000 Cp (70°C)	Serves as a Non-Migratory Process Aid for NBR to Control Volume Swelling/Viscosity

SKYPRENE (CR)

CHLOROPRENE RUBBER

INDUSTRIAL APPLICATION : Moulding - Extrusion - Coated Fabric - Adhesives

Product Grade	Type	Mooney Viscosity $ML_{(1+4)}100^{\circ}C$	Crystalization Resistance	Applications
B-5	Mercaptan Modified	45 ~ 53	High	Automotive Rubber Parts , Industrial Rubber Goods, Electrical Wire &Cables, Belts, Hoses, Rolls, Anti-Vibration Rubber Parts.
B-30		45 ~ 53	Medium	
B-31		36 ~ 44		
Y20E		45 ~ 53		Extruded, Calendar Products, Smooth Surface
TSR-51	Mercaptan Modified	55 ~ 75	Very High	Automotive Rubber Parts (Boots, Dust Cover etc.) Industrial Rubber Goods, Electrical Wire & Cables, Hoses, Rolls, Others for Heat, Low Temperature, Dynamic, Fatigue Resistance.
R-10	Sulphur	35 ~ 55	High	Belts, Rolls, Sponges, Linings Industrial Rubber Goods, Coated Fabrics Others

ADHESIVE APPLICATION:- Pressure Sensitive - Spray, Coatings

Product Grade	Mooney Viscosity $ML_{(1+4)}100^{\circ}C$	10% Solution Viscosity	Crystalization Rate	Applications
G-40S	81 ~ 95	300 ~ 600	Fast	Typical Grade of Fast Crystallization Rate & Excellent Initial Bonding Strength
G-40T	96 ~ 113	600 ~ 900		Higher Viscosity Form of G-40S With Superior Heat Resistance, High Solvent Absorbtion
G-70	-	1600 ~2400		
G-72	36 ~ 48	70 ~130		Lower Viscosity Form of G-40S. Ideal for use in Spray, Coatings.
Y-30H	-	1400 ~ 1200	Medium	Higher Viscosity with Superior Heat Resistance.
Y30HA	-	1900 ~ 2600		

ADHESIVE APPLICATION:- HIGH HEAT RESISTANCE, CARBOXYLATED (CR)

570	42 ~ 64	-	Medium	Typical Grade. Medium Crystallization Rate, Excellent Heat Resistance.

ALSO AVAILABLE • ECO FRIENDLY GRADE FOR TOLUENE FREE FORMULATION • OTHER SPECIALIZED APPLICATION GRADES

SKYPRENE POLYCHLOROPRENE LATEX

Polychloroprene Rubber (CR) is widely used for dry contact Adhesive because of Good Bonding Strength, Flame Resistance, Chemical Resistance and Good process ability. It has been used in form of Solution in Organic Solvents (Toluene, MEK, etc).

Solvent based Adhesives are Hazardous fo Fire Risk. Also they can emit VOC's which may be Harmful to the Enviornement. To overcome this Tosoh has deveoped Chloroprene Latex to replace Solvent based Adhesives.

Latex Grades :- Adhesive Applications

GFL Types :- GFL types are Designed for Dry Contact Adhesive Applications. They have the Advantage of Gel-Free Components and Higher Cross-Linkability with ZnO. This is Superior to those of Traditional Carboxylated Chloroprene Latex. In Addition, the GFL types have better Mechanical, Chemical and Electrolytic Stability than Traditional Anionic Latex.

LA-660 :- The stability of LA-660 has been Adjusted for two Component PU foam Adhesive. The LA-660 Polymerhas a High Molecular Weight as well as High Gel Content, While the Crystallization Rate is Medium.
This means that the Bonding Strength and Heat Resistance are Very High, where as the Adhesive Layer is Soft.

SL Types :- The SL types have Fast Crystallization Rate, and they also Display Good Bonding Strength caused by Gel-Free Components, same as GFL types. The Stability of Latex is Influenced by pH value, therefore SL types can be used for wet-contact Adhesive by Adjusting the pH.

General Properties of Latex Grades for Adhesive Applications :

Product	GFL-820	GFL-890	GFL-280	SL-360	SL-390	LA-660
Polymer Type	Chloroprene- Methacrylic Acid			Chloroprene		
Emulsifier	Anionic			Rosin Salt		
pH	2.1 ~ 6.0			12 ~ 14		
Gel Content	None			None		High
Solid Content (%)	50 ~ 56			50 ~ 54		51 ~ 56
Molecular Weight	Low			High		Very
Crystallization rate	Medium		Fast			Medium
Stability						
Mechanical	Good			Good		
Storage	Good			Good		
Electrolute	Good			Unstable (Under Lower pH)		Unstable (Under Lower pH)

Typical formula	Solid%	Dosage
SKYPRENE LATEX SL-360	50	100
ZnO dispersion AZ-SW	50	2
Resin dispersion E-100	53	38
Thickener UH 420	30	3

Viscosity (mPa.s/25°C) About 40,000
All additives available locally

TOSO-CSM® Chlorosulphonated Polyethylene extos® Alkylated Chlorosulphonated Polyethylene

Chlorosulphonated Polyethylene (CSP / CSM)

TOSOH Corporation is using Environmentally Friendly Solvents. Other company's CSM may contain CARBON TETRA CHLORIDE (CTC) which is Harmful for the Environment as it Damages the Ozone Layer. CTC is Carcinogen which can Cause Cancer. CTC is banned under the Montreal Protocol.

Grades	Chlorine Content (%)	Sulfur Content (%)	Mooney viscosity $ML_{1+4}100^{\circ}C$	Features
TOSO-CSM				
TS-530	35	1.0	56	General purpose grade that achieves balance in physical properties unit degradation and processability
TS-430	35	1.0	46	Similar to the TS-530 with low Mooney viscosity with good processability
TS-830	36	1.0	90	Similar to the TS-530 with high Loding Type Mooney viscosity
TS-9303	36	1.0	105	Similar to the TS-530 high Loding Type low Mooney viscosity Suitable for expansion using higher filler oil dosages to reduce cost.
TS-320	23	1.0	37	Thermoplastic that can be used without curing Lower chlorine content than general grade. Good resistance ro cold.
TS-340	43	1.0	350*	Good solubility, inorganic Solvent low solution viscosity, oil resiatance
CN-1500	30	1.0	1400*	Good Solubility, inorganic Solvent low solution viscosity
extos				
ET-8010	26	0.7	40	Good dynamic and low temperature properties Vulcanizng adhesion with EPDM is possible
ET-8510	30	0.9	1400	Oil resiatance

APPLICATIONS

CSM / CSP

Hoses- Automotive Fuel, Power Steering, Brake, Hydraulic
Hoses Industrial – High Pressure, LPG, Chemical Resistance.
Electrical Cables / Parts – High, Low tension cables.
Communication, Submarine cables, Heat resistant
wire coverings, Radioactive resistant cables.
General - Rollers, Linings.
Engineering & Building articles – Escalator handrails,
Building gaskets, Pond lining sheets, Roofing sheets,
Weather & corrosion resistant paints/coating.

EXTOS

- Synchronous timing belts
- Poly V-belts
- Covering for weatherstrips
- Coupling covers (Train parts)
- Building gaskets.

Emulsion Polymerized Styrene-Butadiene Rubber (E-SBR)

A typical general-purpose Synthetic Rubber with excellent Tensile Strength, Tear Strength, Aging Resistance, and Abrasion Resistance. Used in automobile Tires, Belts, Footwear, and various Industrial Rubber Products.

Non-Oil Extended ESBR

ESBR1502

This is the most Representative type of Non-Staining, Non-Oil-Extended SBR manufactured by using mixed Soap of Rosin Acid and Fatty Acid as an Emulsifier.

Typical specification of all Non Oil Extended ESBR Grades:

Grade	Stabilizer	Combined styrene%	Mooney Viscosity (ML_{1+4}100°C)	Emulsifier	Coagulant	Specific Gravity
ESBR 1500	ST	23.5	52	RA	Hydrochloric Acid	0.94
ESBR 1502	NS	23.5	52	RA/FA	Hydrochloric Acid	0.94
ESBR 1507	NS	23.5	35	RA/FA	Hydrochloric Acid	0.94
ESBR 0202	NS	46	45	RA/FA	Hydrochloric Acid	0.98
ESBR 1503	NS	23.5	52	RA/FA	Glue-Acid	0.93

Applications

Sidewalls, Footwear, Canvas, and other General Black-colored products, Light products that are sensitive to contamination

Oil Extended ESBR

ESBR1723

This is the most representative grade of Oil-Extended SBR. It has good Dynamic properties and Wear Resistance, and is also Economical and has Excellent Processability.

Typical specification of all Oil Extended ESBR Grades:

Grade	Stabilizer	Bound styrene%	Mooney Viscosity (ML_{1+4}100°C)	Emulsifier	Specific Gravity	Oil%
ESBR 1723	ST	23.5	43	RA/FA	0.93	27.3*1
ESBR 0122	ST	37	52	RA/FA	0.95	25.4*1
ESBR 1778	NS	23.5	55	RA/FA	0.92	27.3*2
ESBR 1778N	NS	23.5	46	RA/FA	0.92	27.3*2

*1 Aromatic Oil

*2 Petroleum Hydrocarbon lubricating base Oil

Application

Tire Treads, Camelbacks, Conveyor Belts, Hoses, & other general black Industrial Supplies.

EMULSION STYRENE BUTADIENE RUBBER

E-SBR-1502

Product Description : Emulsion Polymerised Styrene Butadiene Rubber – Boasts Uniform Quality, Easy processing & Excellent Heat/Wear Resistance.

Characteristics : Excellent Processibility, Compatible for Co-Curing with NR, SBR, PBR.

Application : Tyre Tread, Foot Wear, Hoses, Conveyor Belts & Other Mechanical Goods.

Specification:

Properties	Unit	Specification Value		Test Method
		Minimum	Maximum	
Volatile Matter Content	%	-	0.75	ASTM D5668-19
Ash Content	%	-	0.75	ASTM D5667-95
Soap Content	%	-	0.50	ASTM D5774-95
Organic Acid	%	4.75	7.00	ASTM D5774-95
Bound Styrene	%	22.5	24.5	ASTM D5775-95
Raw Mooney Viscosity ML_{1+4}@100°C (Massed Method)	%	47	57	ASTM D1646-19a

E-SBR-1723

Product Description : Emulsion Polymerised Oil Extended E-SBR Rubber. It has good Dynamic properties & Wear Resistance.

Characteristics : Excellent Processibility, Compatible for Co-Curing with NR, SBR, PBR.

Application : Tyre Tread, Conveyor Belts & Other Mechanical Goods.

Specification:

Properties	Unit	Specification Value		Test Method
		Minimum	Maximum	
Volatile Matter Content	%	-	0.50	ASTM D5668-19
Ash Content	%	-	1.50	ASTM D5667-95
Soap Content	%	-	0.50	ASTM D5774-95
Organic Acid	%	4.75	6.20	ASTM D5774-95
Bound Styrene	%	22.5	24.5	ASTM D5775-95
Oil content	%	25.8	28.8	ASTM D5774-95
Raw Mooney Viscosity ML_{1+4}@100°C (Massed Method)	%	43	53	ASTM D1646-19a

Syndiotactic 1,2- Polybutadiene

Syndiotactic 1,2- Polybutadiene. It contains over 90% of 1,2 bonds.
The average molecular weight is about 100,00. It is a unique thermoplastic.
Elastomer of which the crystallinity is controlled so that it comes within about 15% and 30%.

In Japan RB is registered in Pharmaceuticals and Medical Devices Safety Information No.189. of Ministry of Health, Labor and Welfare as DEHP free infusion tube.

Grade	1,2 Bonds(%)	MFI(g/10min) 150 C, 21.2N	Melting Temp. (C)	Specific Gravity	Application	Form
RB810	90	3	71	0.90	Industrial Goods, Melting bags, Sponge, products, resin binders	P
RB820	92	3	95	0.91	Footwear, Industrial goods, Melting Bags, Films, Sheets, Hoses Sponge Products.	P
RB830	93	3	105	0.91		P
RB840	94	9	125	0.91	Footwear, industrial, goods	P

Appliaations and Outstanding Features

Applications			Outstanding Features
Applications of Thermoplastic Elastomers	Film	Film for Industrial use, Melt Bags	Transparency, self sticking property, flexibility, piercing strength, gas permeation, low temperature heat sealing properties..
	Various Footwear Soles	Unit soels, Inner Soles, Outer Soles, based on injection molding	Lightweight, Hard, Rubber-like feeling, no flatting, snappiness, fine reproduction of mold design, paintability, adhesion crack resistant.
	Others	Blow Molding, Injection Molding, Plastics, Modifier, Medical Tubing & Friction Pen Eraser.	Flexibility, Rubber-like feeling.
Application as Rubber	Variety of Sponge Products	Microcellular Sponge, Hard Sponge, Semihard Sponge, Soft Sponge, Crepe-like Sponge.	One-step cure, broad curing condition range, enables high filling, elasticity, snappiness, no flatting, weather-ability, ozone resistance, heat resistance, tear resistance, paintability, adhesion, slip resistance, abrasion resistance.
	Various High Hardness Products	Footwear, Industrial Goods, Sports Goods, Miscellaneous Goods	Elongation, Tensile Strength, High Hardness, Snappiness, flowability, cross-linking properties, Weatherability, Ozone Resistance, Heat Resistance, Slip Resistance, Abrasion Resistance.
	Injection Cured Products	Industrial Goods	Flowability, Crosslinking property, Weatherability, Ozone Resistance, Heat Resistance, Snappiness.
	Various Rubber Modifiers	Various Rubber Products	High green strength, flowability, extrudability, weatherability, ozone, resistance, heat resistancesnappiness.
	Others	Transparent Cured Rubber Products , Transparent Rubber Sole	Transparency, weatherabilty, heat resistance
Other Application	Modifier	Blends with SBS	Improvement in appearance of Molded Goods. (Elimination of flow marks and scratch marks) Improvement of flowability.
	Crosslinking Co-agent	Crosslinking Co-agent for Polyolefins	Reduction amount of crosslinking agent, good, Mechanical Properties.
	Photosensitive Material	Printing Materials	Photosensitivity(Photocrosslinking), Flowability, Low Solution Viscosity.
	Thermosetting Resin Product	Resin Vibration Insulator	High Hardness

Butyl(IIR)-Polyisoprene (IR)

Excels in Air Impermeability, Weather Resistance, Ozone Resistance, Heat Resistance, and Aging Resistance. **Heat aging resistance** is improved for Chlorobutyl and Bromobutyl in comparison with regular Butyl rubber.

Grade	Product Stain	Unsaturation (mo1 %)	Halogen Content (%)	Mooney Viscosity ML 1+8 (125°C)	Specific Gravity	Characteristics	Application
BUTYL 065	NS	0.8	-	32	0.92	Weather, Ozone, Chemical Resistance	Electric wire, cable, adhesive , construction materials, sealing materials.
BUTYL 268	NS	1.5	-	51	0.92	Low air impermeability, good heat resist.	Inner tube , bladder , adhesive stoppers valve.
BUTYL 365	NS	2	-	33	0.92	Excels in heat & Chemical Resistance.	Automotive parts, bladder, Heat Resistance hose, Lining.
CHLOROBUTYL 1066	NS	-	Cl 1.2	38	0.92	Chlorobutyl Rubber	Curing envelope , Inner tube & Inner Liner.
BROMOBUTYL 2222	NS	-	Br 2	32	0.93	Bromobutyl Rubber	Inner Liner , Automotive parts , Electric wire , Industrial goods , Stoppers , Bladder Shoesole , Sports ball , Engine Mounts , Hoses, belts , Tank Lining.
BROMOBUTYL 2244	NS	-	Br 2	46	0.93		
BROMOBUTYL 2255	NS	-	Br 2	46	0.93		

Polyisoprene Rubber - IR

IR2200 is a general purpose synthetic rubber having almost the same molecular structure as natural rubber. When compared with natural rubber, it dose not contain the natural non-rubber components such as proteins and fatty acids.
It has uniform quality, excellent hue, and no contamination.

It also has the characteristic of enabling the shortening of mastication and mixing time.

Grade	Product Stain	Cis Content (%)	Mooney Viscosity ML_{1+4} (125°C)	Hue	Specific Gravity	Application
IR2200	NS	98	82	Cleat White	0.92	Tire, belts, various industrial goods, footwear, adhesives, elastic cord, rubber bands

POLYACRYLIC RUBBER (ACM/HT-ACM)

Toa Resin Corporation [TRC] manufactures PolyAcrylic Rubber by technology received from Japan which was further refined & advanced by TRC own R&D in Taiwan.

TRC SA Series has outstanding stability against "Heat", "Ozone" and exhibits excellent "Oil-resistance "when working in contact with Oils containing Sulfur additives to work at temperatures above 140°C in modern automobiles conforming to BS/ Euro VI Norms.

Polyacrylic Rubber Grades (ACM) - Cure Site is Chloro - (Ethyl Vinyl Ether)

Grade	Viscosity ± 5 $ML_{(1+4)}$,100°C	Characteristics	Temperature Range	Applications
SA-260	35	Extremely Low Temp resistance grade	-35 ~ +170	Injection Moulding & Extrusion
SA-240L	37	Low Viscosity of SA-240. Excellent Processing.	-25 ~ +170	Injection Moulding & Extrusion
SA-201L	37	Low Viscosity of SA-201. Excellent Processing.	-15 ~ +180	Injection Moulding & Extrusion
SA-225	40	Low Temp Resistance Excellent Processing.	-25 ~ +170	Injection Moulding & Extrusion
SA-240	45	Low Temp Resistance grade.	-25 ~ +170	Moulding
SA-201	55	General purpose grade.	-15 ~ +180	Moulding

Hi-Temp Polyacrylic Rubber (HT-ACM) - Cure Site is Carboxyl

Grade	Viscosity ± 5 $ML_{(1+4)}$,100°C	Temperature Range	Applications & Characteristics
SA-350HF	30	-25 ~ +190	Suitable for Molding and Extrusion process, Good Resistance to Automotive Fluids, Outstanding Ozone and Weather Resistance, Good Flex fatigue Resistance, Vibration-damping consistency, Automotive Industry
SA-360	30	-35 ~ +190	
SA-350	35	-25 ~ +190	
SA-313	37	-25 ~ +200	
SA-350G	40	-25 ~ +200	
SA-353	30± 5	-23 ~ +200	
SA-323K	37	-25 ~ +200	
SA-364	30	-25 ~ +175	

APPLICATIONS: GASKET, ENGINE OIL RESISTANCE HOSES, INTERCOOLER AIR HOSES, SHAFT SEAL, BEARING SEAL, O RING, GROMMETS etc...

PROCESSING/COMPOUNDING ADDITIVES FOR ACM, HT-ACM, ECO COMPOUNDING

Ingredients	Function	Maker	Product Name
Potassium Stearate	Curative (Soap System)	NOF Corporation, Japan	Nonserl SK-1
Sodium Stearate	Curative (Soap System)	Kao Chemical, Japan	NS Soap
Plasticizer	Ester based; Low & High temperature resistant	Adeka Corporation, Japan	ADK CIzer RS-735
Naugard 445	Amine Type Antioxidant & Heat stabilizer	-	Naugard 445
Nocceler BZ-P	Secondary Acceletater used for Triazine	-	ZDBC
Hexamethylene Diamine Carbmate	Primary Curative- Amine cure	Cymer LLC, USA	GP-210
Synthetic Hydrotalcite	Acid Scavanger / Acceptor	Huebach, Germany	Hisorb 4A
Polyoxyethylene Alkylether Phospate	Improve Mill Release of Sticky Compound	Toho Chemical, Japan	Phospanol RL-210
Stearyl Amine	Mould Release	Kao Chemical, Japan	Farmin 80
Amorphous Silicon Dioxide	Extends Hot Air Ageing	DSL, Co. Ltd., Japan	Nipsil-NA From TOSOH Silica

CHLOREX C35
CHLORINATED POLYETHYLENE (CPE)

Chlorex is a Chlorinated Polyethylene Elastomer specially polymerized by combining Chlorine & Polyethylene in an aqueous slurry process. This process produces saturated linear molecular back-bone which gives **Chlorex** elastomers many advantages in applications requiring ignition, Weather, Ozone, Fire, oil and cold / Heat resistance, especially in Rubber Vulcanizate.

Chlorex is primarily also used as a Modifier for Synthetic Rubbers improving various Physical and Mechanical properties at the same time improving processability. **Chlorex** is also used as a modifier for PVC, EVA and other Polyolefin's which significantly improves Impact Resistance of Rigid PVC and gives excellent Ductility, Chemical Resistance to PVC & improves Compression Set due to presence of Chlorine.

Compatibility:
Easily blendable with most Rubbers SBR, BR, CR, CSM, EPDM, N BR, NBR/PVC, etc… and also used as a modifier for **PVC, EVA, PE, ABS etc..**.

Characteristics:
Chlorex when compounded with other materials mentioned above produce either thermoset or thermoplastic material especially designed to meet demanding criteria including

- Durability
- Excellent Ignition Resistance
- Resistance to Weathering, Sunlight & Ozone resistance
- Resistance to a range of Acid and Alkaline liquids
- Resistance to Oil & Fuels
- Low-temperature Flexibility
- Excellent resistance to cut-through, Crush & Abrasion
- Low Coefficient of Friction
- Lead & Lead free formulations
- Improves Surface finish
- Facilitate easy Mould release
- Resistance to Heat Deformation
- Excellent Electrical Resistance

Applications:
Moulded products like Gasket, Industrial & Automotive Hoses, High performance industrial Hoses, Tubing, Air Ducts, General Moulding, Conveyer Belting, Rubber Sheets, Dock Fenders, **Power Cables**, PVC modification, Footwear and extrusions etc…

Processing:
Chlorex can be **processed on** conventional rubber machinery and/or plastic machinery. Apart from increasing polymer content in the vulcanizate material **Chlorex also works as an internal lubricant/plasticizer** which helps **easy processing in mixing,** extrusion, calendaring, moulding etc…

Chlorex is a free flowing powder and can be added in dry blend or directly fed to extruder, Mixing Mill, Kneader.
Chlorine content > 35% allows high Filler & Plasticizer loading which helps lower cost of compound

Grade	Chlorine Content%	Hardness Shore A	Tensile Strength Mpa	Melting Point ˚C	Volatiles %	Break Elongation % ≥	Mooney Viscosity $ML_{(1+4)}$@ 120°C
C 3680	36±1	60	6	120	0.3	600	75-80

TETRAX - HIMOL

Polyisobutylene is Composed of Long-Chain Hydrocarbon formed by Polymerization of Isobutene, and is extremely stable under normal Conditions. It is Transparent Non-Noxious High-Consistency Semi-Solid Polymer free of Impurities.

Tetrax (Industrial Uses) :

• Adhesive • Sealant • Asphalt Improvement Material • Lubricant Improver • Electrical Insulating Material • Special Pigment

Item	Units	Representative Values				Test Method
Grade		3 T	4 T	5 T	6 T	
Viscosity Average Molecular Weight	Mv	30,000	40,000	50,000	60,000	FCC Method
Density	15^{0}Cg /cm^{3}	0.92				JIS K 2249
Refractive Index	N^{20}/D	1.507		1.508		JIS C 2101
Flash Point	COC^{0}C	248				JIS K 2265
Appearance		Transparent,with no foreign substances				JIS C 2101

Himol (Food Additive) :

•Chewing Gum Base Ingredient •Medical Adhesive Material.

Item		Units	Typical Date				Test Method
Grade			4 H	5 H	5.5 H	6 H	
Viscosity Average Molecular Weight		MV	40,000	50,000	53,000	60,000	FCC Method
Density		15°C g /cm^{3}	0.92				JIS K 2249
Flash Point		COC °C	248				JIS K 2265
Appearance			Transparent,with no foreign substances				JIS C 2101
Penetration	150g X 5 sec	at 25°C mm X 10	173	139	134	124	JIS K 2207 Conformity
	100g X 5 sec		138	110	104	96	

Low-Cost Standardised Polymers

KryFlex- ESBR-1502 & 1712

Product Description: Emulsion Polymerised Styrene Butadiene Rubber- Boasts Uniform Quality, Easy processing & Excellent Heat/Wear resistance.

Packing: 35Kg

Raw Material Properties:

PROPERTIES	1502	1712
Mooney Viscosity ML(1+4) @100°C	53±6	53±6
Oil Content (Wt%)	0	37.5
Styrene (%)	23.5±1.5	23.5±1.5
Stabilizer	Non-Staining	Staining
Density (g/cm3)	0.95	0.95
Ash Content	Max 0.7	Max 0.6
Volatile Mater	Max 0.75	Max 0.75
Color	Light Tan Bales	Brown Bales

KrySol SSBR 460-S

Product Description: Solution Polymerised SBR extended with TDAE oil 37.5 phr

Raw Material Properties:

PROPERTIES	Nominal Values
Mooney Viscosity ML (1+4) @100°C	45-55
Oil Content (Wt%)	37.5±3
Styrene (%)	25-35
Vinyl (%)	40-60
Stabilizer	Staining
Density (g/cm3)	0.95
Ash Content	Max 0.6
Color	Dark Brown Bales

KryCis NdBR

Product Description: Ultra-High Cis Neodymium Butadiene Rubber

Raw Material Properties:

PROPERTIES	Nominal Values
Mooney Viscosity ML (1+4) @100°C	46±5
Cis Content (Wt%)	Min 90%
Antioxidant	Non-Staining
Ash Content (1h, 550°C) Wt.%	Max 0.6
Volatile Matter	Max 0.7
Density (g/cm3)	0.9
Color	0 ffWhite

Low-Cost Standardised Polymers

KRYNITE NBR- N343L

Product Description: It is non-staining type Acrylonitrile Butadiene Rubber containing about 33% Acrylonitrile. They are remarkably improved in processability and have excellent physical properties such as resistance to oil, heat, water and non-ionic surfactants.

Characteristics: They are widely used for rubber products which require oil resistant property. KRYNITE N343L show good compatibility with PVC, ABS resins and other synthetic rubbers.

Packing: 34Kg

Typical Properties:

Bound Acrylonitrile	Mooney Viscosity ML(1+4) @100°C	Polymerization Condition	Stabilizer	Insoluble Portion in MEK	Specific Gravity
33±2.5	44-55	Cold	Non-Staining	None	1

KryBro Butyl (IIR), Chloro Butyl (CIIR) and BromoButyl (BIIR)

Product Description: Butyl Rubber (IIR) is a copolymer of isobutylene and a small amount of isoprene. When the polymer is halogenated after polymerization, it forms halobutyl rubbers—chlorinated butyl rubber (CIIR) and brominated butyl rubber (BIIR), depending on whether chlorine or bromine is introduced.

Packing: 25 Kg

Raw Material Properties:

Property	Butyl 3301 OFF	BIIR 22030 Repro.	CIIR
	Butyl Rubber (IIR)	Bromobutyl Rubber (BIIR)	Chlorobutyl Rubber (CIIR)
Mooney Viscosity ML1+8) @125°C	45±6	32±4	38±4
Volatile Matter (Wt%)	Max 0.7	Max 0.7	Max 0.7
Halogen Content (%)	Unsaturation: 1.6~2.0	Bromine: 1.8 ± 0.2	Bromine: 1.3 ± 0.2
Total Ash (Wt%)	Max 0.7	Max 0.7	Max 0.7
Stabilizer	Non-Staining	Non Staining	Non-Staining

Made in TAIWAN

JEP EPDM

Terpolymer of Ethylene Propylene & Diene Elastomer (EPDM)

Packing: 25 kg

JEP EPDM	ML(1+4)@ 125°C MU (±10)	Diene % by Weight (±) 1	E/P Ratio weight (%)	Volatile Matter by weight (%)
496 (Oil Extended by 50 PHR)	50	5 ENB	57/38	0.75
666 (Oil Extended by 72 PHR)	52	4.5	58/37	0.5
4E55T (Oil Extended by 30 PHR)	45-49	4.1-4.6	-	<0.63
424	57	5 ENB	66/29	0.75
457	62	6 ENB	65/30	0.75

EXCELINK™ TPV

Advanced Olefinic Thermoplastic Elastomer (TPV)
Engineered for Performance • Efficiency • Sustainability

ENEOS EXCELINK™ TPV (Formerly JSR Corporation-Japan) is a next-generation elastomer developed with advanced EPDM vulcanization and polymer alloy technology, delivering superior performance, easy processing, and cost efficiency for automotive and industrial applications.

Key Features:

- Wide Hardness Range
- Excellent Injection Moldability
- Superior Adhesion with Cured Rubber
- Low Coefficient of Friction
- Oil-Bleed Free Formulation

Typical Applications

- EXCELINK is widely used in automotive weather sealing systems, including:
- Glass Run Channel Corners
- Door Seal Corners
- Window Sealed Components

Industry Acceptance

- Widely used by Global & Domestic OEMs

Major Advantages:

1. Cost Reduction

Compared with conventional cured rubber systems, EXCELINK offers:

- Simplified production process
- Reduced labour and equipment requirement
- Lower energy consumption
- Reduced manufacturing footprint

These benefits translate into significant production cost savings for manufacturers.

2. Environmental Sustainability

- Low Density (0.9 – 1.0) up to 20–30% lighter product than conventional rubber
- Recyclable material system
- Energy-efficient moulding process

This makes EXCELINK an environmentally friendly material of choice aligned with global sustainability goals.

3. Manufacturing Efficiency

The TPV processing route eliminates multiple steps required in conventional rubber production such as curing and extensive finishing.

- Faster production cycles
- Lower scrap rates
- Easier recycling of production waste

Property Data of Excelink Grades:

Properties	Unit	Testing Method	1810B	1805B	1703B	1601B	1504B	1404B	1303B	1301B
Hardness Shore A (Delay 15sec)	-	ISO 868	80	80	73	64	54	45	38	37
Density	g/cm^3	ISO 1138	0.9	0.89	0.89	0.88	0.89	0.88	0.88	0.88
Melt Flow Rate (230°C,21N)	g/10min	ISO 1133	60	16	2	10	2	2	1	1
Mechanical Properties	Mpa	ISO 37(I)	-	-	-	-	-	-	-	-
Modulus at 100% Elongation			3.1	3.2	2.6	2.0	1.5	0.9	0.9	0.9
Tensile Strength at break			6.6	7.5	7.3	6.2	4.4	3.4	3.3	3.3
Elongation at Break			610	740	730	820	650	620	650	660
Tear Strength : Unnicked Angle	kN/m	ISO 34 B(a)	36	34	34	26	19	15	13	14
Compression Set (22hrs at 70C)	%	ISO 815	56	58	57	44	44	34	40	34
Gloss	%	ISO 2813	58	65	63	36	44	42	35	10
Low Temperature Brittleness	F	ISO 812	<-76	<-76	<-76	<-76	<-76	<-76	<-76	<-76
Coefficient of Friction : static	-	JSR method	0.12	0.15	0.15	0.12	0.18	0.11	0.16	0.16
Coefficient of Friction : dynamic	-	-	0.12	0.12	0.11	0.10	0.13	0.08	0.12	0.16
Adhesive Strength at break with EPDM dense (Hs70A)	Mpa	JSR method	3.1	3.6	3.3	2.3	2.1	1.6	1.3	-
Adhesive Elongation at break with EPDM dense (Hs70A)	%	Tensile Speed : 200mm/min	90	140	190	120	150	170	190	-
Adhesive Strength at break with EPDM sponge (transfer molded)	Mpa	JSR method	-	-	-	-	-	1.3	0.9	0.9
Adhesive Elongation at break with EPDM sponge (transfer molded)	%	Tensile Speed : 200mm/min	-	-	-	-	-	270	250	230
Weatherability Test	-	SAE-J1960	Pass	Pass	Pass	Pass	Pass	Pass	Pass	Pass
Mold Shrinkage	%	JSR method	0.8	0.8	0.9	0.8	0.8	0.9	1.2	1.3

WV-007

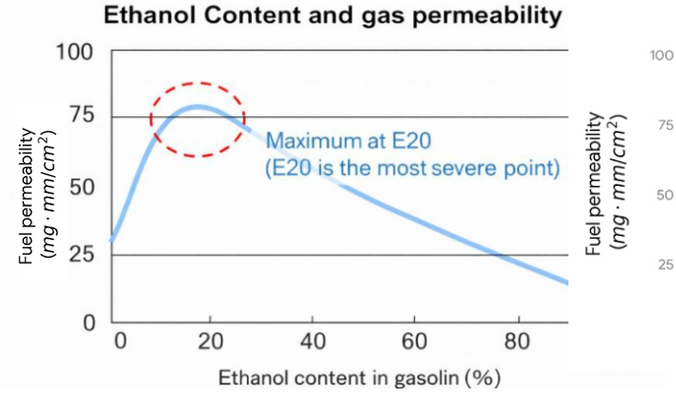
WV-007 is a polyblend with an NBR/PVC ratio of 70:30 manufactured by Elastomix Co. Ltd, Japan, a Subsidiary of ENEOS Materials (formerly JSR)

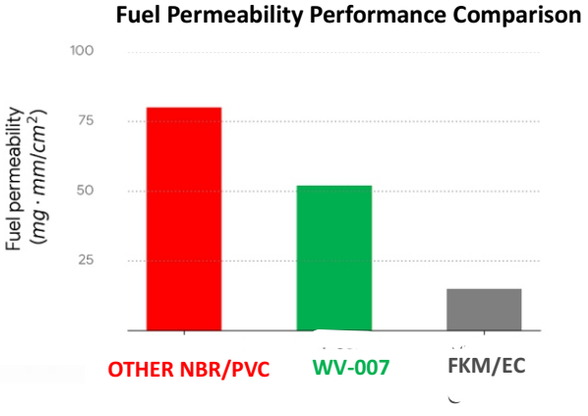
Product Description:

WV-007 is formulated with a precise NBR/PVC ratio of 70:30. This specific balance ensures the material maintains the oil resistance of NBR while benefiting from the environmental and ozone resistance provided by the PVC component

Technical Specification:

Properties	Value	Test Method
Heat Loss (%)	0.18	JIS K6238
Ash (%)	0.22	JIS K7250
Mooney Viscosity MS(1+4) @ 100°C	89	JIS K6300
Specific Gravity	1.09	JIS K6268





Key Features of WV-007 Vs. FKM:

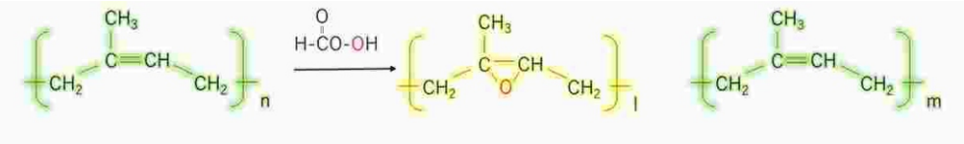
Properties	WV-007	Fluoro Elastomer
Cost	Low	Very High
Sp Gravity	1.2~	1.8~
Loading	Medium Loading	Low Loading
Handling & Processing	Same as conventional NBR PVC	Needs special care
Compounding Ingredients	Conventional ingredients	Needs Special/Expensive Carbon like MT Black & other expensive chemicals
Post Cure requirement	Post Cure not required	Post Cured Required----Increased Production Cost

Why WV-007 is superior over other NBR-PVC:

Property	Test Condition	WV-72G	WV-007	Conclusion
Volume Swell in E-20 Fuel	23°C / 70 h	39.6 %	32.0 %	WV-007 shows significantly lower fuel swell, indicating superior resistance to ethanol-blended fuels
Volume Swell in IRM-903 Oil	150°C / 70 h	61.3 %	43.0 %	WV-007 demonstrates drastically improved oil resistance
Ozone Resistance	50 pphm Ozone @ 40°C / 72 h	Cracked		WV-007 exhibits excellent ozone resistance

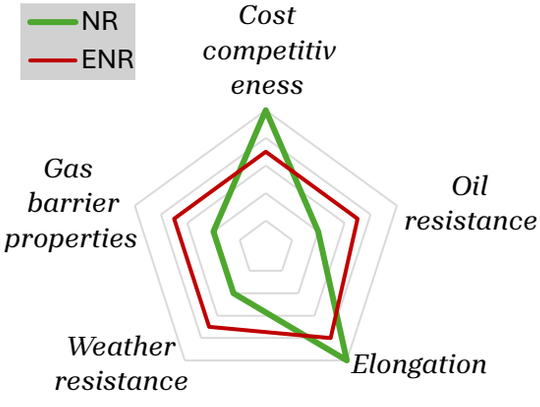
Epoxidized Natural Rubber (ENR)

Epoxyprene(ENR)- chemically modified natural rubber designed to outperform the conventional natural rubber produced by Muang Mai Guthrie Public Company Limited (Thailand).



Polymer Parameters	Epoxyprene-25	Epoxyprene-50
Epoxidatio , (mole %)	25 ± 2	50 ± 2
Tg, (°C)	-47	-24
Mooney* ML(1'+4') @100 °C	70-100	70-100
Ash (weight%)	0.50 max	0.50 max
Density g/cm³	0.97	1.02

Salient Features Compared to NR



Non-Tyre	Tyre
Increase in Damping Property	Reduced Rolling Resistance
Reducti n in swelling of hydrocarbon oils	Increase Wet Grip
Decrease in gas permeability	Excellent Cut Growth Resistance
Increase in silica reinforcement	Excellent Flex Fatigue Resistance
Increase Compati ility with Polar Polymers	Increase in Abrasion Resistance

Applicaton

Functional Tyre

- ✓ Wet Grip
- ✓ Low Gas Permeability
- ✓ Low Rolling Resistance
- ✓ Flex Fatigue Resistance

Excellent Damping Property

Synthetic Rubbers → ENR

EPDM, IIR etc.

Unique Texture

High Compatibility

ENR + Resins — PLA, PVC etc.

ENR + Rubbers — NR, NBR etc.

Exporter

Sanyo Trading Asia Co., Ltd.

Sanyo Trading Group

CSM LATEX

CHLOROSULFONATED POLYETHYLENE LATEX

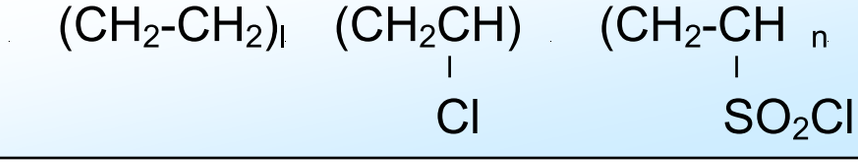
SUMITOMOSEIKA CHEMICALS CO.,LTD.
Functional Chemicals Division

SEPOLEX CSM

- **Sepolex CSM** is a latex widely used for matrix rubbers such as belt hose.
- **Sepolex CSM** rubber is a latex with excellent resistances such as:
  - High thermal resistance.
  - High weather resistance.
  - High oil resistance.
  - High chemical resistance.
- Due to these properties, **Sepolex CSM** is used in a wide number of applications such as:
  - Matrix rubbers (Adhesive for EPDM)
  - Binder material
  - Coating agent

Structure of CSM

CHLOROSULFONATED POLYETHYLENE LATEX



CSM has excellent resistance against ozone, weather, oil and chemicals. Moreover, it can be colored with bright colors

2

Comparison between the properties of CSM gum and other gums

Kind of gum :ASTM abbreviation (Vulcanized gum)		Test method	CSM	EPDM	NBR	CR	NR	SBR	IIR
Machine character	Breaking strength(MPa)	K6301	7～20	5～20	5～25	5～25	3～30	5～20	5～15
	Elongation(%)	K6301	100～500	100～800	100～800	100～1000	100～1000	100～800	100～800
	Abrasion resistance	D394	◎	○	◎	◎～○	◎	◎	○
Physical property	Thermal resistance (max-temperature ℃)	–	160	150	130	130	120	120	150
	Cold resistance (brittle temperature ℃)	D746	-20～-60	-40～-60	-10～-20	-35～-55	-50～-70	-30～-60	-30～-55
	Aging resistance	K6301	◎	◎	○	◎	○	○	◎
	Ozone resistance	K6301	○	◎	×	○	×	×	◎
	Weather resistance	K6301	◎	◎	○	◎	○	○	◎
Oil, Chemical resistance	Gasoline･light diesel oil	K6301	○	×	◎	○	×	×	×
	Benzene･Toluene	K6301	△～×	△	△～×	×	×	×	△
	Trichloroethylene	–	×	×	×	×	×	×	×
	MEK,Ethyl acetate	K6301	△	◎	×	○～△	○～△	○～△	◎
	Strong acid	K6301	◎	○	○	○	△	△	◎
	Strong alkali	K6301	◎	◎	○	◎	○	○	◎

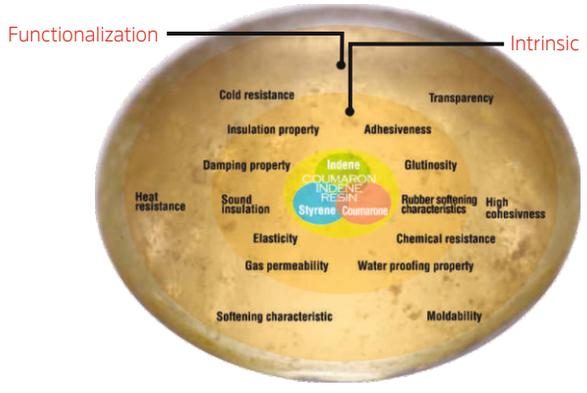
Tackifying Resin

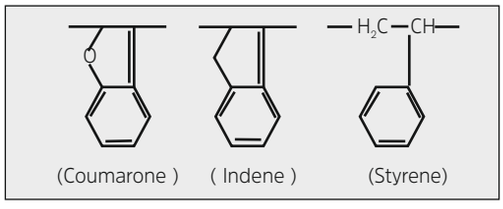
Tackifying Resin

COUMARONE INDENE RESIN G 90

Genuine Low Molecular Weight, Consistent Quality C.I. Resin From Nitto - Japan
Proven performance In High Quality Rubber Compounds, Adhesives, Anticorrosive, Paint & Coating

EFFECTIVE TACKIFIER & PROCESS AID TO ENHANCE OVERALL QUALITY OF RUBBER COMPOUND





Nitto Synthesizes C.I Resin from COKE is different from Petroleum / Hydrocarbon Resin which are Synthesized from Petroleum Craked C5-C9 fractions which has very High Molecular Weight Compared with C.I Resin.

C.I. RESIN IS UNIQUE COMBINATION OF COUMARONE, INDENE & STYRENE MOLECULES-EACH OF THEM PLAY IMPORTANT ROLE IN PERFORMANCE

COUMARONE	INDENE	STYRENE
• Rubber Softening, works as Process Aid, Increases TACK • High Cohesiveness-Better knitting, Chemical Resistance. • Water proofing, Sealing & Corrosion Resistance.	• Transparency (Important for Adhesives) • Better Adhesiveness, Increase Tack • Glutinosity(Helps maintain Viscosity)	• Heat Resistance (Better heat ageing) • Sound Insultation, Softening Characteristics • Increases Gas Impermeability.

Characteristics		Appearance	Number of Colors	Sofening Point	Viscosity	OH Value	Acid Number	Specific Gravity	Molecular Weight
UNIT		--	#	^{0}C	mPa*s 25^{o}C	KOH mg/G	KOH mg/g	-	Mw
NITTO RESIN	G-90	Bead	16max.	90	-	25	1.0Max.	1.11	770
	H-100	Bead	16max.	100	-	60	1.0Max.	1.14	710
	V-120	Bead	16max.	120	-	30	1.0Max.	1.12	960
	V-120S	Bead	16max.	120	-	30	1.0Max.	1.12	950
	L-5	Liquid	Dark-brown	-	500	50	1.0Max.	1.09	160
	L-20	Liquid	Blackish-brown	-	2,000	70	1.5Max.	1.10	220
	L-80	Liquid	Blackish-brown	-	6000-10000	10 Max	-	-	-

Elastomer Compounding G-90	Adhesive Tackifier H-100	Binder in Paint & Coatings H-100
➢ Best For Gum Cushion Compounds In Retreading. ➢ Reduction In Mixing Time-power Saving ➢ Faster/better Filler Incorporation (Knitting) ➢ Better Scorch Safety ➢ Faster Cure Rate-optimum Cure ➢ Improved Building Green Tack Importatant for Ply Building Operation Green Shape Retention On Hoses. ➢ Faster Extrusion And Smooth Finish ➢ Improved Physical Properties- Both Original And Aged. ➢ Tackifier & Softner specially High Mooney Rubbers.	➢ Low Molecular Weight <700, compared to PF Resin-helps In Faster Dissolution, Solubility And Strength ➢ Free Flowing Uniform Bead Form Compared to Lump Form of PF Resin. Helps In Fast Dissolution. ➢ Excellent Tack Retention Same as **PF Resin** ➢ Colour is Light Amber compared to dark brown colour of PF resin-hence better aesthetics ➢ Has superior/higher adhesive bond strength increase tack by 15-20% against PF resin after 24 hours. ➢ Does not form harmful "formaldehyde" known to be carcinogenic. no foul smell during process. ➢ IT can be blended up to 33% of PF Resin	➢ **Low Molecular Weight <700,helps In** Faster Dissolution, **Solubility & Strength** ➢ Effective Anti Corrosive Caol Tar Chemistry. Helps In Protecting Ships Hull For a Long period of time And offer Fine **Adhesion Property to The Steel Surface.** ➢ **Excellent tack retention** ➢ Excellent heat resistance ➢ Faster drying & better Gloss

T-REZ™ RA100

A superior Aliphatic Hydrocarbon Resin (C5) from ENEOS Materials Corporation, Japan

About T-REZ™ RA100:

High-Performance Tackifying Resin for Adhesives & Coatings: Enhancing Performance in Hot Melt Adhesives, Rubber Adhesives & Industrial Paints & Coatings

Why Choose T-REZ™ RA100?

1. Enhances initial tack and adhesion strength
2. Improves processing efficiency in Adhesive formulation
3. Offers reliable and consistent performance across batches
4. Suitable for cost-effective formulation optimization
5. Provides a strong balance between heat resistance and flexibility
6. Trusted solution for pressure-sensitive and hot-melt adhesive systems

Salient Features:

1. High-performance Aliphatic Hydrocarbon Resin
2. **Excellent Tackifying Efficiency** for a wide range of polymers **(EVA, SBR/SBS, Polyisoprene (IR), Polyisobutylene (PIB) and Butyl Rubber (IIR)**
3. **Balanced softening point** ensuring good processing and performance
4. **Low color gardner** suitable for light-coloured applications
5. Supplied in pellet form for easy handling and uniform mixing
6. **Consistent quality** backed by advanced manufacturing standards

Technical Specification:

Properties	Value
Resin Type	Aliphatic Hydrocarbon Resin
Physical Form	Pellets
Softening Point	95-105 °C
Typical Softening Point	99 °C
Color (Gardner, 50% Toluene)	3.4

Applications:

RA-100 is widely used in:

A. Adhesive:

- Pressure Sensitive Adhesives (PSA)
- Hot Melt Adhesives (HMA)

B. Other Uses:

- Sealants
- Tapes & Labels
- Industrial Bonding Applications

RA-100: The Reliable Tackifying Resin for Modern Adhesive Technologies

Speciality Fillers

Speciality Fillers

REINFORCING CARBONS FOR RUBBER APPLICATIONS

JMF Performance Materials Pvt. Ltd. is proud to announce that we are now a distributor of Cabot Corporation's products in India.

Cabot's industry-leading portfolio delivers advanced solutions for a wide range of industrial rubber product applications and can help rubber compound manufacturers tailor mechanical, electrical and thermal properties while also improving compound flow and product quality.

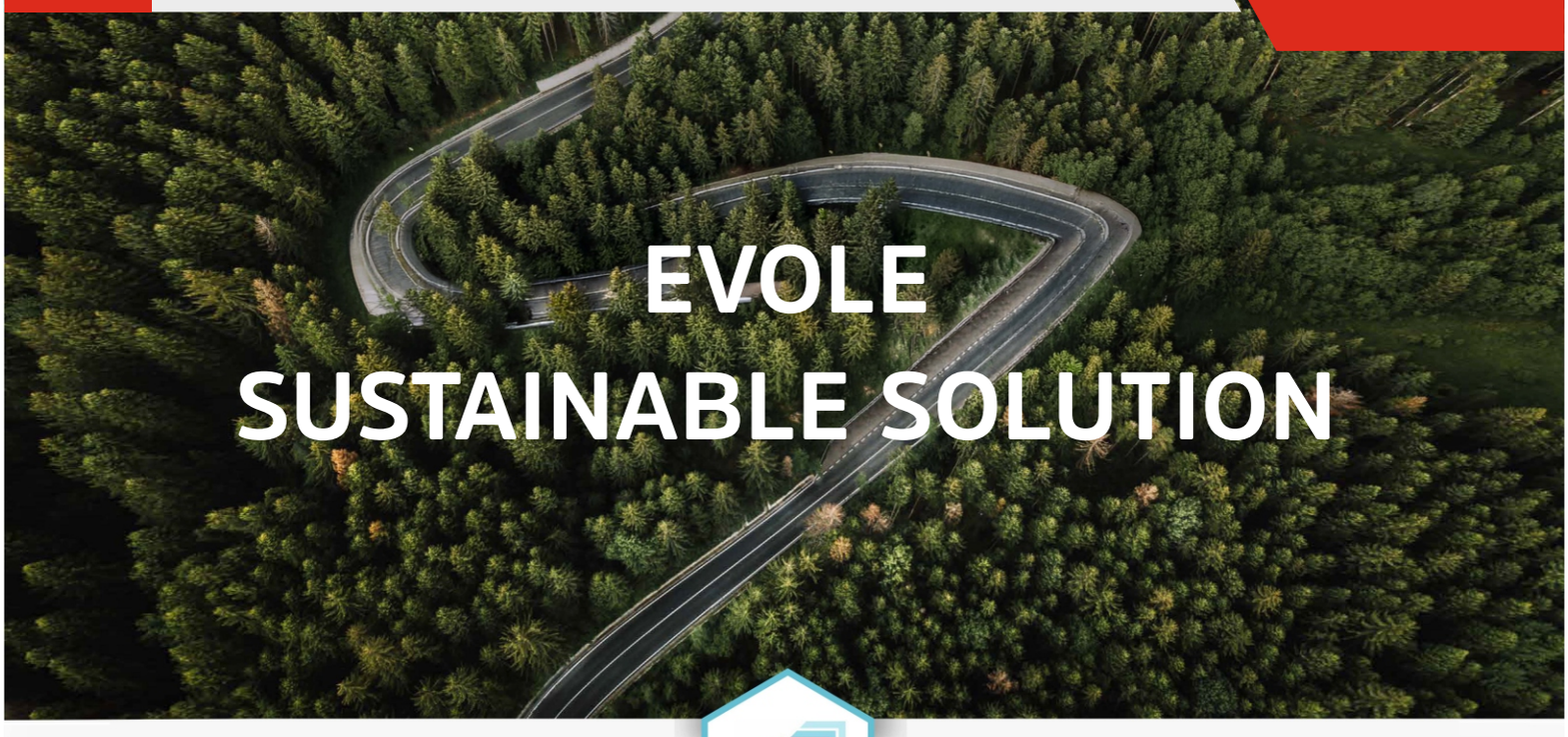
STERLING®
Reinforcing Carbons

SPHERON®
A and LP Series Reinforcing Carbons

ENDURE®
Reinforcing Carbons

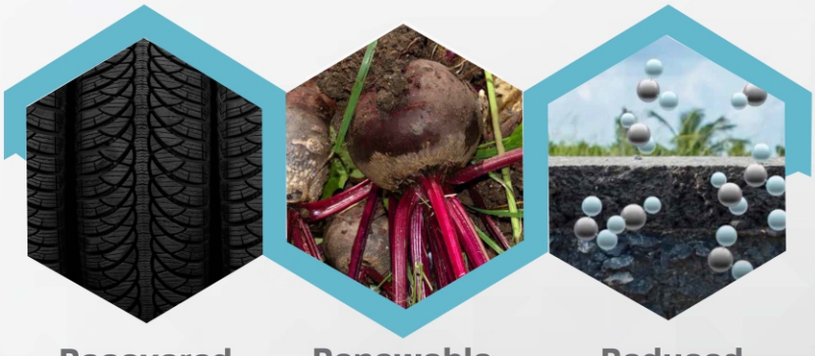
CABOT®

JMF
Enduring Partnerships



EVOLE SUSTAINABLE SOLUTION

EVOLVE Sustainable Solutions is our technology platform for advancing sustainable reinforcing carbons – we offer products that deliver sustainable content with reliable performance at industrial scale. EVOLVE Sustainable Solutions represents a significant portion of Cabot's R&D spend, with the goal that 100% of our product and process development projects will have a sustainability benefit by 2025.



Recovered
Reinforcing carbons made from materials recovered from end-of-life tires.

Renewable
Reinforcing carbons made from renewable materials.

Reduced
Reinforcing carbons made with a demonstrably reduced greenhouse gas footprint.

CABOT

cabotcorp.com/evolve

Nipsil® Specialty Silica from TOSOH Silica Corporation

High-Performance Precipitated Silica from TOSOH Silica Corporation, Japan

Why Choose Nipsil?

TOSOH's silica is precisely engineered to deliver durability, shape retention, smooth surface quality, and consistent processing performance. Silica from TOSOH Corporation provide clear, measurable end-product benefits that differentiate your formulations.

	Silica grades for Non- Tyre Automotive Industries	
Typical Properties	**Nipsil® NA Equiv. to Carplex 1120**	**Nipsil® E-74P**
Physical State	Fine powder	Fine powder
pH (4% suspension)	10.0– 11.0	6.0– 8.0
Moisture Content (Wt%)	< 9.0	< 8.0
BET Surface Area	110 – 160 m^2/g	30– 60 m^2/g
Average Particle Size	—	2.3– 4.1 µm
Oil Absorption	230– 260 ml/100g	—

Properties & Processing Advantages

Key Properties	Processing Advantages
Efficient reinforcement delivering balanced hardness	Easier mixing with reduced energy and processing time
Excellent abrasion resistance & tear properties for durability	Optimized particle morphology ensures quick wet-out and uniform distribution
Low compression set compared to other available silica supporting shape retention under stress	Improved flow and handling for smoother extrusion and Moulding
Smooth surface finish for improved appearance and touch	Stable processing window that reduces scrap and variability

Product Positioning

Grades	Positioning
Nipsil® NA	High surface area silica designed for strong reinforcement, durability, and abrasion resistance, Heat Resistance
Nipsil® E-74P	Optimized for smooth processing, Excellent compression set Properties, Superior surface finish,

Typical Applications

- Automotive & industrial rubber compounds
- Hoses, seals, gaskets & moulded goods

genan

Made in **GERMANY**

GENAN MICRONISED POWDER

can be added to NR, SBR, EPDM or NBR compounds for different applications, e.g.:

Railway parts

Conveyor belts

Reclaim rubber

Moulded rubber goods

Passenger & truck tyres manufacturers

BOMBAY CHEMICAL & RUBBER PRODUCTS

JMF Performance Materials Pvt. Ltd.

We the Rubber People...

Scan for download PDF

With Genan's micronised process technology, liquid nitrogen is used to freeze the rubber granulate and produce powders from 40 to 120 mesh.

The main quality parameters that distinguish these powders are their high purity, a narrow grain size distribution and a tightly controlled chemical composition.

It is suited for several production processes such as rubber extrusion, compression or injection moulding.

The smooth particles and the controlled feedstock give an advantage of predictability of results when using these Genan products.

THE ONLY LIMIT IS YOUR IMAGINATION...

ImerFlex® T 10D

(Earlier known as Mistron® Vapor-R)

VERSATILE UNIQUE MINERAL FILLER FOR RUBBER COMPOUND

Scan for Detailed Catalogue

Description and applications :

ImerFlex T 10D is High Purity, Platy, Very Fine Talc, which Provides Optimum Balance of Reinforcement and Processability in rubber applications due to its unique Microcrystalline structure and engineered particle size distribution. **ImerFlex T 10D** is available in powder, **densified,** and compacted forms to accommodate various raw materials handling requirements.

ImerFlex T 10D improves Processability, Mechanical Properties, and Permeability Resistance of Rubber Compounds. Due to its softness reduces wear of processing equipment & also helps to reduce mixing time. It is used to Reduce Viscosity, Reduce Nerve, Increase Extrusion rate and quality, additionally improve Dispersion of Carbon Black and Precipitated Silica. **ImerFlex T 10D** Reinforces Rubber Compounds and improves Tensile Properties, Fatigue, Toughness, and Durability. The Platy structure of **ImerFlex T 10D** significantly Enhances Barrier Properties. As a Asbestos free filler highly suitable for Medical Applications & the products which come in contact with Human Body.

TYPICAL PROPERTIES

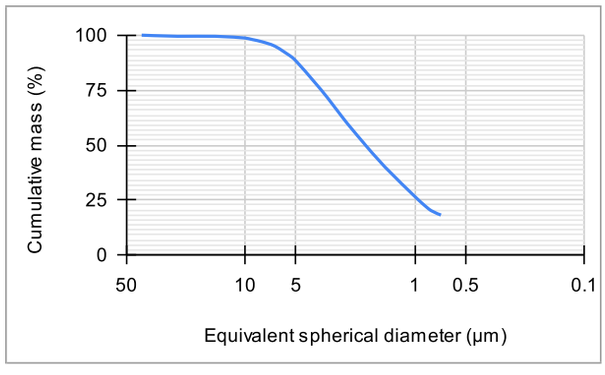
Whiteness (Minolta CR 400, illuminant D65/2°)Y	89
B.E.T. (ISO 9277)	14.4 m^2 /g
Specific gravity (ISO 12154)	2.78 g/cm^3
Tapped bulk density (ISO 787/11)	0.49 g/cm^3
Hardness (Mohs' scale)	1
Moisture content at 105℃ (ISO 787/2)	0.3 %
pH (ISO 787/9)	9

MINERAL ANALYSIS (BY THERMOGRAVIMETRIC ANALYSIS)

Talc	94%
Chlorite	5%
Dolomite	1%
Loss on ignition at 1050℃	6.0%

PARTICLE SIZE DISTRIBUTION BY SEDIGRAPH

Sedimentation analysis, Stokes' Law (ISO 13317-3)
Median Diameter d50: 1.9 µm

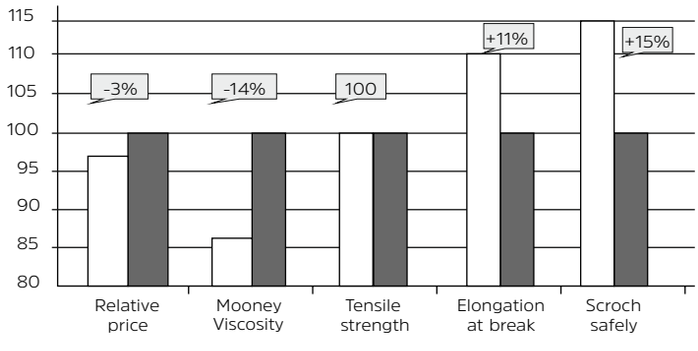


All round improvement in performance with 20% ImerFlex T 10D Vs Carbon Black in EPDM

ImerFlex T 10/ Carbon black

Carbon black

Example of 20% of carbon black replaced by ImerFlex T 10 in EPDM



ImerFlex T 10D has a Co_2 footprint about 10 times lower than carbon black.

ImerFlex T 10D is the best FILLER FOR CABLE INSULATION COMPOUNDS as it Increases Volume Resistivity. High Volume Resistivity, enhances Insulation Resistance(IR) specially in EPDM compounds, as compared to CalciumCarbonate or Silica. Its Hydrophobic nature help IR retention after water immersion compared to other fillers.

ImerFlex® T 10D

(Earlier known as Mistron® Vapor-R)

VERSATILE UNIQUE MINERAL FILLER FOR RUBBER AUTO TUBES AND HOSES

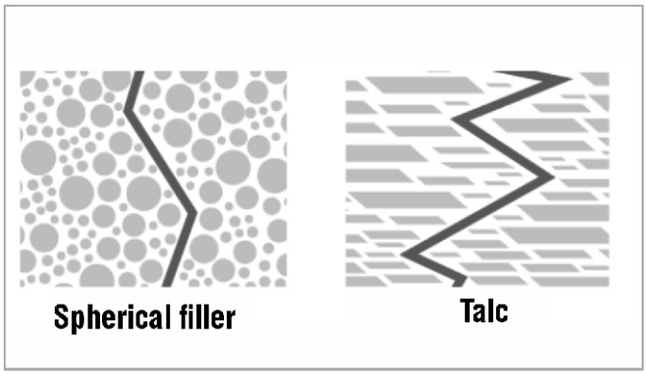
Scan for Detailed Catalogue

Description and Applications :

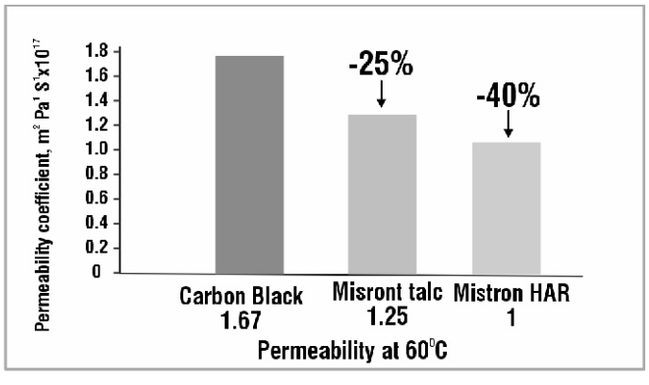
ImerFlex T 10D is High Purity, Platy, Very Fine Talc, which Provides Optimum Balance of reinforcement and Processability in Rubber applications due to its unique Microcrystalline structure and engineered particle size distribution. **ImerFlex T 10D** is available in Powder, **Densified**, and Compacted forms to accommodate various raw materials handling requirements.

ImerFlex T 10D due to its Platy Morphology increases diffusion path for Gases & Liquids which comes in contact with Auto Tubes & Hoses .This Improves Barrier Properties and results in the Permeability Resistance which is required in Butyl & NR Rubber based Auto Tubes and for Rubber Hoses also. In comparison with Carbon Black , **ImerFlex T 10D** Reinforced (as a partial replacement of Carbon Black) Automotive Tubes ,Rubber Hoses show superior Fatigue Resistance, Crack Initiation & propagation. With this property enhancement Service Life of Auto Tubes & Hoses gets improved, also Improvement in Thermal Property .Thus with partial replacement of Carbon Black with **ImerFlex T 10D** achievement of desired property Improvement with cost reduction of final product is possible.

Diffusion Path



Permeability



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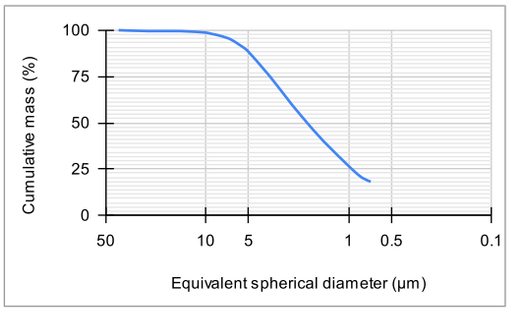
PARTICLE SIZE DISTRIBUTION BY SEDIGRAPH

Sedimentation analysis, Stokes' Law (ISO 13317-3)

Median Diameter d50: 1.9 µm



ImerFlex T 10D has a Carbon foot print photoabout 10 times lower than Carbon Black.

Technical Persons contact details for Technical queries and Guidance Formulations

IMERYS ImerFlex HAR® T-20

Solution for Rubber Application

It is Hydrated Magnesium Silicate, Water Repellent, Lamellar, and Inert. It is the softest mineral on earth. Microcrystalline Talc act in synergy with Reinforcing Fillers such as Carbon Black and Silica

Sr No	Sailent Features
1	**Better processing :** Lower compound viscosity and Improved Mold Flow & Anti-Sticking
2	**Barrier effect :** Lower Gas and Liquid Permeability
3	**Synergism on mechanical properties :** Improve tensile properties such as Elongation at Break Enhance Cut and Tear resistance (Toughness and Durability), Silane treated talc improves Compression Resistance
4	**Extend service life :** Very Good Retention of Tensile Properties
5	**Superior weathering and UV stability :** No gloss variation after weathering, Limited discoloration after weathering

Market	Applications
Electric Vehicles	Lower CO_2 emissions Increased performance of lithium ion batteries for electric cars
Car Tires	Weight reduction is one of the key drivers for decreasing Co_2 emission in Cars

Physical characteristics :

CHARACTERISTICS		Specific area BET m^2/ g	Sedigraph D_{50} (µ)	Laser granulo D_{50} (µ)	Aspect Ratio (Jennings)
Dry Mill Process	T10 D	-15	1.9	4.7	23
Wet Milled Process	Mistron HAR®T20	-20	1.2	5.7	143

Application :

A. HAR® Talc in **Tyre Inner liner** Partical CB Replacement

Advantages :

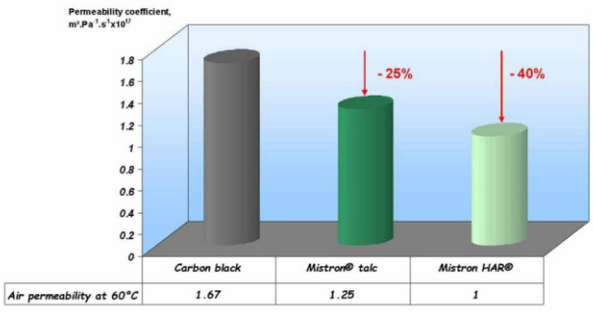
1. Retention of properties after Air Ageing also retained
2. Further Permeability reduction possible without Carbon Black

B. HAR® talc in **Tyre Side Wall** Partial CB Replacement

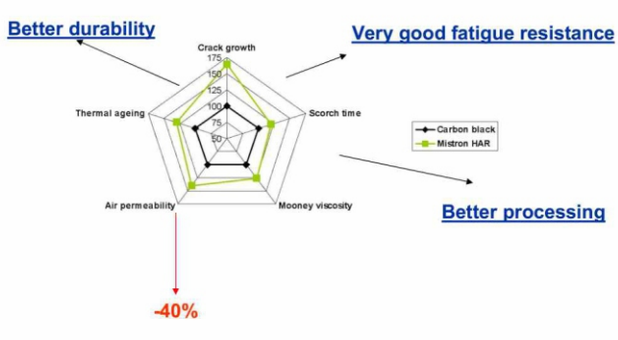
Advantages :

1. HAR® talc enhance cut growth resistance of SW compound & Thermal Resistance is also improved Vs Pure CB Compound enabling possible extension of Service life
2. No negative effect observed on Rebound, Ozone Resistance

Permeability Performance



Overall Properties



MAGNESIUM CARBONATE

This product is a fine powder of High purity basic Magnesium Carbonate made by our proprietary seawater process. It is characterized by high translucency when blended with Natural Rubber.

GOLD STAR, HeavyType

GOLD STAR is characterized by high translucency when blended with Natural Rubber. Heavy Type has a low bulk density and less impurities than ordinary products.

Magnesium Carbonate Granular

This granular product has good workability and helps to improve productivity.

TypicallyCharacteristicAnalysis				
ItemofQuality		GOLD STAR	HeavyType	Granular
ChemicalAnalysis	Moisture (%)	2.5	2.5	3.0
	Loss on Ignition (%)	54.2	55.2	54.8
	MgO*1 (%)	42.0	41.5	41.0
	CaO (%)	0.3	0.3	0.4
	Cl (%)	0.04	0.01	0.05
pH		10.4	10.4	10.4
Whiteness	(%)	96	94	-
BulkDensity	g/cm^3	0.27	0.50	0.65
OilAbsorption	(ml/100g)	140	80	-
AverageParticleSize	(um)	7	12	-
Specific Surface Area(BET)	(m^2/g)	40	35	35
Screen Residue(75um)	(%)	0.01	0.04	-

*1Measured after Drying

Standard Packing

Net weight is 25 kg. The product is packed in a multilayer paper bag.

Application

* Natural Rubber
* Various Synthetic Rubbers
* Plastics
* Pigment PrintingInks
* Food Additives
* Animal Feed Additives
* Cosmetics
* Raw Material for General Chemicals
* Gloves
* Air-Balloon

OP 200R

OP 200R is produced by heating highly refined kaolin to temperatures above 1000°C. During calcination, chemical, morphological and mineralogical changes occur.

OP 200R is widely used in the rubber and polymer industries. It is used as an antiblocking additive in polyolefin films. It allows for excellent extrusion in cables, hoses and gaskets and provides a good compression set for rubber seals and stoppers.

OP 200R imparts excellent electrical insulation properties to low and medium Voltage power cables

Typical Properties

Property	Typical Value
Physical Form	Powder
Whiteness (Aimil Reflectance meter)	95
Average Particles size (Sedigraph)	1.3
pH (20% Solids)	5.5
Screen Residue (%325 mesh screen)	<0.01
Free Moisture (%)	<0.5%
Specific Gravity	2.62
Oil Absorption, Rub Out, (gm/100gm)	55
Bulk Density, Loose (gm/lit)	335.0
Bulk Density, Tapped (gm/lit)	485.0

PRECIPITATED BARIUM SULPHATE ($BaSO_4$)

Precipitated Barium Sulphate is an inert White Filler, Resistant to Acid and alkalis, and has very good Weathering Resistance. It does not absorb light from the ultraviolet to the infra-red range and so does not impair the brilliance of colour pigments. Particle sizes range from 0.7 to 3.0 µm. It can be used along with Color Pigments to make Color Compound of FKM.

Typical Specification:-

Test	Unit	Specification
Apperance	Visual	White Powder
Relative Density	g/cm^3	4.5
Moisture	%	0.30 max
$BaSO_4$	%	97.0 min
Free Alkali (as Na_2O)	%	0.04 max
Water-Soluble Matter	%	0.40 max
Residue on Sieve (45 µ)	%	0.40 max

Salient Features for use in Rubber Industries:-

- A fine filler with high $BaSO_4$ content with High Brightness.
- Unique Characteristics of uniform dispersion in Rubber Compound.
- Improves Acid & Water Resistance Properties in FKM Compound.
- Improves Stiffness of FKM Vulcanizates.
- Improves Stiffness & Anti-Ageing properties for General purpose & Synthetic Rubber Especially for Colour Compounds
- Doesn't Interfere in cure Characteristics in Rubber Vulcanisation.

Typical Doses :-

5-10 PHR in Black FKM Compound & 5-15 PHR in non-black

Wollastonite A High Performance Filler For FKM compounding

Calcium Meta Silicate

Fillex 6 – AF1 (KW)

Wollastonite is Chemically a Calcium Meta Silicate (CaSiO3), It is a naturally Occurring White & Acicular (Needle Shaped) Mineral. In Addition to Wolkem Wollastonite's Unique morphology, It is alkaline, Inert, has Low Loss on Ignition, Low Water Solubility, Low Co-Efficient of Linear Thermal Expansion & it originate from our own Extensive & Unique Deposits. Various Grades of Wollastonite Powder are Supplied in 60 mesh to d50<2 micron sizes & also in treated from as per Customers Specific Requirement.

Chemical Properties	Specification
Calcium Meta Silicate CaO + SiO_2	93.00 Min

Physical Properties	Specfication
Brightness (as Compared with 100% MgO)	76.0 Min
Moisture	0.10 Max
Coating	Present
Retention on 400 Mesh BSS	1.00 Max

Uses :
As a functional filler

SYTNTHETIC HYDROTALCITE

HALOGEN ACID SCAVENGER & STABILIZER

HISORB 1

Product Description	
Chemical Description	Magnesium Aluminium Hydroxide Carbonate
Chemical Formula	Mg_6Al_2 $(OH)_{16}CO_3$ $4HO_2$
CAS No	11097-59-9

Application & Advantages

HISORB 1 acts as an excellent CoStabilizer for PVC and other Resins Polyolifins

- High Heat Stability
- Safe (Approved for food contact)
- Polymer yellowing is suppressed, No stearic vapour problem
- Reduction of water carry -over
- Negligible impact on mechanical strength, Sulphide free
- Very good Heat stability in combination with Zn-St & Ca-St.
- Very good Heat stability in combination with Tin-mercapto
- Suitable for Rigid and flexible

Technical Data		
Appearance	Fine White Powder	
Loss on Drying (%)	< 1	@ 105°C / 4 Hrs.
Al_2O_3(%)	16 - 23	By titration
MgO (%)	25 - 33	By titration
Avg. Particle Size (µm)	< 1	Laser Diffraction

Regulations	
Germany BfR recom. IX	Compliant
USA (FDA) GRAS	Listed
Food Contact Materials (EU)	PM/REF No.34690
CONEG, EC 94/62	Compliant
ROHS, 2002/95/E, 2005/618/EC	Compliant
End of Life Vehicles, 2000/53/EC, 2002/525/EC	Compliant

HISORB 4A

Product Description	
Chemical Description	Magnesium Aluminum Hydroxide Carbonate
Chemical Formula	$Mg_6Al_2(OH)_{16}CO_3 4HO_2$
CAS No	110097-59-9
EC No	234-319-3

Application & Advantages

HISORB 4A acts as Excellent Halogen scavenger, stabilizer for Polyolefines produced with Ziegler-Natta, Friedel Craftsor other acid catalysts and acid acceptor for EVA, Halogenated Rubber etc.HISORB 4A is having following advantages.

- Safe (Approved for food contact)
- Non-Kosher/Non-Halal offending coatings available
- Effcient (Applications require only small dosages)
- Polymer yellowing is suppressed, No stearic vapour problem
- Reduction of water carry-over

Technical Data		
Appearance	Fine White Powder	
Density [g/cm³]	2.0	DIN EN ISO 787-10
Specific Surface [m²/g]	5 - 15	BET
pH (5%)	8 - 9.5	5% Ethanol in Water
Oil Absorption[ml/100g]	35 - 45	DIN EN ISO 787-5
Loss on ignition(%)	43.5 - 45.0	@ 800°C / 4 Hrs.
Loss on Drying(%)	<0.5	@ 105°C / 4 Hrs.
Al_2O_3(%)	19 - 23	By titration
MgO(%)	30-35	By titration
Particle Size(µm)	80%< 1, 100% < 5	Laser Diffraction

Regulations	
Germany BfR recom. IX	Compliant
APME AP 89/1	Compliant
USA (FDA) GRAS	Listed
Food Contact Materials (EU)	PM/REF No.34690
Toys Europe EN 71-3	Compliant
Toys USA ASTM F 94/62	Compliant
CONEG, EC 94/62	Compliant
RoHS,2002/95/E, 2005/618/EC	Compliant
End of Life Vehicles, 2000/53/EC, 2002/525/EC	Compliant

PACKING • 25kg LDPE Bags with inside liner • Different types of packaging are available on request

Magnesium Compounds for Thermal Conductive filler.

Advantages:

- Magnesium Oxide “WR Series” has High Thermal Conductivity & high water / Acid Resistance by Special Surface Treatment.
- Synthetic Magnesite “MAGTHERMO” has High Thermal Conductivity, Softness etc.
- Reasonable price Compared to Nitride

	Magnesium Oxide Coated with Water Resistant "WR Series"		
	SL-WR	P-WR	PSF-WR
Avarage Particle Size (μm)	9.8	3.2	1
Specific Surface area m^2/g)	5	8.8	6.6
MgO (%)	97	96.3	97.5
Advantages	High Thermal Conductivity, Good Water Resistivity with Surface Coating.		

Generally plastic have good properties for electrical application like lightness & Insulation but thermal conductivity is not very high of 0.1 ~ 0.3 W/m.K. Recently electrical Components become smaller, thinner & Higher-integrated.

To reduce Heat-Buildup, Various fillers such as Almina (Aluminium Oxide), Silica (Silicon Oxide) & Boron Nitride are used as thermal conductivity, softness & cost.

	Feature				Performance Comparison				
	Chemical Formula	Specific Gravity	Thermal Conductivity (W/m.K)	Mors Hardness	Thermal Conductivity	Hardness	Water resistant	Acid Resistant	Cost
Magnesium Oxide	MgO	3.6	45-60	6	O	Δ	X	X	O
Magnesium Carbonate	$MgCO_3$	3	15	3.5	O	O		O	O
Magnesium Hydroxide	$Mg(OH)_2$	2.4	8	2.5	Δ			X	O
Silicon Oxide (Fused Silica)	SiO_2	2.6	2	6	X	Δ			O
Aluminium Oxide	Al_2O_3	3.9	20-35	9	O	X			Δ
Hexagonal Boron Nitride	BN	2.3	30-50	2	O		O	O	X
Silicon Nitride	Si_3N_4	3.4	20-90	8	O	X		O	X

Flame Retardant Fillers and Chemicals

Flame Retardant Fillers and Chemicals

MAGSEEDS

Non-Halogen flame Retardant Magnesium Hydroxide for Cables

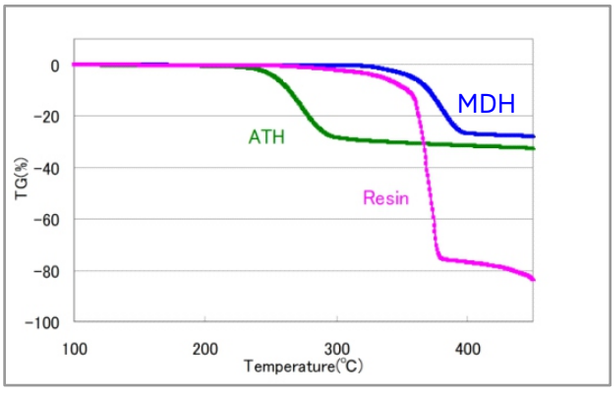
MAGSEEDS has been developed for use as Non-Halogen Flame Retardant of Plastic and Rubber and offer various grade of products with different surface treatments by considering the dispersibility and compatibility to polymers.

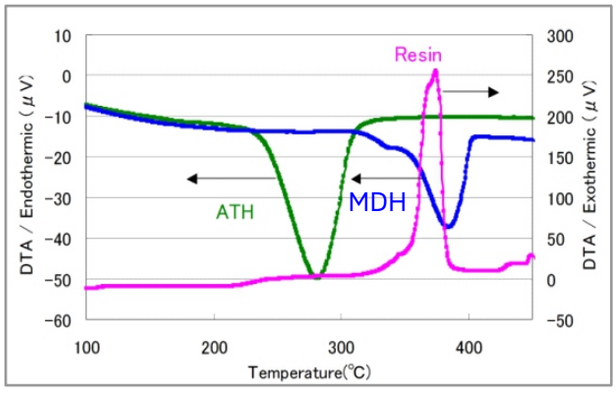
Characteristics :

- Very fine and sharp particle size distribution which enable uniform dispersion in resin.
- Produced directly from sea water.
- Superior to ATH
- Low Na content, high volume resistivity.
- Better Efficient Flame Retardance due to close temperature and decrease fuming more than other flame retardants.
- Environment-Friendly

Grades		S-6	S-6F	LN-6	
Moisture	%	0.2	0.2	0.1	Recommended Resin
Loss on ignition	%	30.6	30.5	30.8	
MgO	%	68.6	68.5	68.4	
Coating agent	—	Vinyl Silane	Vinyl Silane	Fatty Acid	
Amount of coating agent	%	0.3	0.3	0.7	
BET specific surface area	m^2/g	5	9	5	
Average particle size (D50)	μm	1.1	0.7	1.1	
Applications for cables	Building	●	●	●	EVA, EEA, PE
	Automotive	●	●	●	PP, PE, PA
	Electric Appliance	●	●		EVA, EEA, PE
	Optical fiber	●	●	●	EVA, EEA, PE
	Solar cell	●	●	●	EVA, EEA, PE
	Train	●	●	●	EVA, EEA, PE
	Ship	●	●	●	PE, EPDM

Thermal analysis Comparison : MDH & ATH





Aluminium Hydrate (ATH)

A Superior Aluminium Hydrates from Hindalco Industries Limited, India
Chemical Name: Aluminium Hydrate (ATH)
Chemical Structure: $Al(OH)_3$
Make: Hindalco Industries Limited, India
Packing: 30 Kg Small PP bag

Technical Specification:

Parameters	Spec Range
$Al(OH)_3$ (%)	99.6 (Min)
LOI at 1000°C (%)	35.0 (Max)
Na2O (%)	0.30 (Max)
Fe2O3 (%)	0.02 (Max)
SiO2 (%)	0.02 (Max)
D50 (Sedigram 5125) (µm)	4.5 - 5.2
+ 45 µm	0.5 (Max)

Unique Features:

1. **Non-Halogenated:** Unlike bromine or chlorine-based FRs, ATH does not release toxic or corrosive gases during a fire, making it safer for public spaces and electronics.
2. **Smoke Suppression:** ATH is one of the most effective smoke suppressants available, reducing the density of smoke produced during polymer combustion.
3. **High Whiteness:** With high purity and low iron content (Fe2O3 max 0.02%), it maintains the color stability of the final polymer product.
4. **Cost-Effectiveness:** It serves as both a functional filler and a flame retardant, allowing for high loading levels (often 40%–60% by weight) to reduce overall material costs.

Bonding Agent

Bonding Agent

Metaloc S-7

Adhesive for bonding Fluoroelastomers to Metals and Fabrics

METALOC S-7 is an adhesive used for bonding unvulcanized Fluoroelastomers to metals, stainless steel, fibers or other rigid substrates. The bond formed with **METALOC S-7** has superior resistance to oils, heat and performs in corrosive atmospheres.

TYPICAL PROPERTIES

Color	: White or pale yellow
Composition	: Dissolved organic silicones and dispersed solids in a Methanol solvent system.
Reactive material	: 10-12 %
Specific gravity	: 0.83
Flash point	: 8.0^{0} C
Diluents	: Methanol or Ethanol
Shelf life	: One year

APPLICATION AND HANDLING

Proper cleaning of the substrates is an important factor in the bonding operation. The metallic or non-metallic substrate must be cleaned of all oils, grease, rust, scale, dirt of other contaminants by suitable mechanical or chemical methods.

METALOC S-7 must be stirred before and during use.

METALOC S-7 may be applied to metals by **brushing, spraying or dipping.** It can be brushed full strength and maybe thinned with Methanol or Ethanol for dipping or spraying. With reasonable care, 1 Kg of **METALOC S-7** will cover approximately 100-200 m^{2}. Do not return used adhesive to original container.

METALOC S-7 should dry for at least 10 minutes at room temperature or 5 minutes at 50^{0}C before bonding. The coated parts should be used within 7 days. They should be given another coat of adhesive if they are not used within this time period. For good bonding, prebaking of the adhesive is desirable. **METALOC S-7** will resist prebaking conditions same to 1st cure times and temperature.

METALOC S-7 will bond elastomers during the curing process by most commonly used vulcanizing techniques.

CAUTION

Contains volatile solvents. Keep away from heat, sparks or open flame. Use adequate ventilation. Avoid prolonged breathing of vapors and mists. Avoid contact with skin, eyes and clothing. Do not take internally.

Metloc C-12

Bonding Agent for Cured Rubber To Metal Other Rigid

METALOC C-12 is a single-coat adhesive for bonding NBR compounds to Metals or other rigid substrates.(Non heating or heating type adhesive)

Typical Properties

Color	: Black
Composition	: Phenolic Resins & Rubbers are dissolved in solvents & also fillers are dispersed
Solvents Solid Content	: 18 - 20 %
Density	: 0.86 - 0.90g/cm^3
Viscosity	: 50 - 100 mPa·s
Solvents	: Methyl ethyl keton (MEK) and Ethyl acetate
Diluents	: MEK or Methyl isobutyl keton (MIBK)
Flash Point	: -13.5°C
Shelf life	: 12 Months

Application and Handling

Proper cleaning of the substrates is an important factor in the bonding operation. The metallic or non-metallic substrate must be cleaned of all oils, grease, rust, scale, dirt or other contaminants by suitable mechanical or chemical methods.

METALOC C-12 may be applied to metals by brushing, spraying or dipping. It can be brushed full strength and may be thinned with MEK or MIBK for dipping or spraying. With reasonable care, 1 kg of METALOC C-12 will cover approximately 10 - 20m^2.

METALOC C-12 should dry for at least 30 minutes at room temperature or 10 minutes at 50°C before bonding. The coated parts should be used within 7 days. They should be given another coat of adhesive if they are not used within this time period.

METALOC C-12 will bond NBR during the curing process by most commonly used vulcanizing techniques. For best results, curing temperature should be maintained between 130°C to 200°C.

CAUTION

Contains volatile solvents. Keep away from heat, sparks or open flame. Use adequate ventilation. Avoid prolonged breathing of vapors and mists. Avoid contact with skin, eyes and clothing. Do not take internally.

PACKING: 18KG Drum

Crosslinking Agent, Co-Agent & Anti Reversion Agent

Crosslinking Agent, Co-Agent & Anti Reversion Agent

INNOVOH ($Ca(OH)_2$)

Calcium Hydroxide

CROSS LINKING ACTIVATOR FOR FKM COMPOUND

Innovoh is a high purity fine particle size

Chemical Analysis	Typical % mass	Specification % mass
Calcium hydroxide content ($Ca(OH)_2$)	96.5	>95
Silica (SiO_2)	1.0	
Ferric oxide (Fe_2O_3)	0.2	
Alumina (Al_2O_3)	0.2	
Magnesium oxide (MgO)	0.15	
Carbon (CO_2)	1.9	
Sulphur (SO_3)	<0.1	
Moisture Content (H_2O)	0.6	<0.7
Lead (Pb)	<10 ppm	
Copper (Cu)	<5 ppm	

Physical Properties	Typical	Specification
Appearance	White powder	
Bulk Density	300 kg/m^3	
% less than cum vol at 45 micron (Malvern)	100%	>99.99%
Specific surface area (BET)	16m^2/g	

Packaging

Innovoh is supplied in pre-weighed, low-melt (<80°C) sachets (standard is 12 x 1kg sachets per poly-lined bag) or 12.5kg poly-lined bags. Other packaging is available on request.

Applications

Innovoh is used as a cross-linking activator, particularly for Fluoroelastomers that have to show optimal compression set at high Temperatures. It is normally used in combination with a fine particle size Magnesium Oxide.

As it is highly Hygroscopic, Opening of Sealed Package, Weighing and Incorporation into the Compound should take place just prior to Processing (Mixing Process).

ALSO AVAILABLE: LIGHT MGO-STARMAG 150, CX 150, PLASTICIZER-PN 5090, DISTILLED CARNUBA WAX, DIAK 1&3
READY TO USE: FKM COMPOUND-BLACK & COLOUR.

Amine Cure Crosslinking Agents For
FKM/HT-ACM/AEM/ECO

GP 210
(HEXAMETHYLENE DIAMINE CARBAMATE)

GP 210 (Masterbatch)
(70% HDMC 30% AEM Binder)

- Most Popular Cross-Linking Activator for FKM/AEM/ACM/HT-ACM/ECO (Tight Cure)
- Significantly Decreases Compression set in FKM/AEM/ACM/HT-ACM/ECO At High Temperature
- Excellent Scorch safety helps Reduce Rejection/Wastage
- Excellent Heat Aging Condition

GP 213
(DICINNAMYLIDENE HEXAMETHYLENE DIAMINE)

- Curing / Crosslinking Agent for FKM, AEM, ACM, ECO etc...
- Safer Curative with Excellent Scorch Safety.
- Gives excellent Tensile Strength at Elevated Temperature
- Produces Compounds with Excellent Tear Strength

QURECURR PDM

High Performance Anti-Reversion Co-Agent for Rubber Compounds form YASHO Industries, India

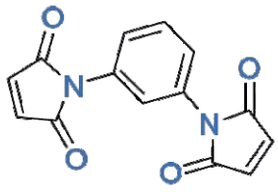
WHY Choose PDM?

QURECURR PDM is a high-performance bismaleimide compound based on N, N'-1, 3-Phenylene dimaleimide, designed to enhance the durability and thermal stability of rubber compounds. It functions as an efficient co-agent in peroxide curing systems and also provides significant benefits in sulfur-cured rubber formulations by improving resistance to reversion.

Chemical Information:

Chemical Name: N,N'-1,3-Phenylenedimaleimide
CAS No: 3006-93-7

Chemical Structure:
Molecular Weight: 268



Technical Parameters:

Property	Typical Value	Test Method
Appearance	Yellow to Greenish Yellow Powder	Visual
Melting Point (°C)	98.0 min	ASTM D 1519
Loss on Drying (105°C) (%)	0.5 max	QCD/TM/24
Ash Content (%)	0.5 max	ASTM D 4574

Unique Features to look into:

1. **Excellent Anti-Reversion Performance**: Improves resistance to thermal reversion in sulfur-cured rubber compounds.
2. **Higher Crosslink Density**: Acts as an efficient co-agent in peroxide curing systems, promoting the formation of additional crosslinks through reactive double bonds.
3. **Improved Mechanical Durability**: Supports better retention of physical properties under severe operating conditions
4. **Reduced Peroxide Requirement**: Enables lower peroxide usage while maintaining curing efficiency.
5. **Improved Heat Resistance**: Enhances high-temperature performance and long-term thermal stability.
6. **Enhanced Adhesion**: Improves bonding strength to textile cords and metal reinforcements such as steel wires.
7. **Versatile Compatibility**: Suitable for specialty rubbers including CR, CSM, NBR, Acrylic Rubber, EPDM and PP blends (TPV).

Packaging: Available in 25 Kgs. Paper Bag.

SODIUM STEARATE NS SOAP

STANDARD CURE SYSTEM FOR ACM RUBBER

FEATURES

- Cost Efficient
- Excellent Cure Properties
- Improved Initial Mechanical Properties
- Superior Heat Ageing Properties

Parameters	Specificatons
Appearance	White to Light Yellow Needle
Free Alkali	0.10 Max
Alcohol Insoluble Matter	2.50 Max
Water Insoluble Matter	0.80 Max
Water Content	10±2
Iron Content	50 Max
Petroleum Ether-Soluble Matter	1.50 Max

Typical Formulation

Ingredients	Compound (PHR)
TRC ACM SA 201	100
Stearic Acid	1
Naugard 445	2
FEF	65
Sulphur	0.3
NS Soap (Sodium Stearate)	3
SK1 (Potassium Stearate)	0.3

Rheometric Properties (ODR) 180°C for 15 min

ML d Nm	4.83
MH d Nm	20.66
Ts2 minute	1.13
Tc90 minute	7.82
Mooney Viscosity $ML_{(1+4)}$ @100°C	71.2

Physical Properties:-Test Slabs Cured at 180°C, 10 min Post Cured 170°C for 3 Hrs.

Shore Hardness (Shore A)	70
Specific Gravity	1.326
Tensile Strength,Mpa	13.54
Elongation at Break,% (Min)	246

Heat Ageing Properties:- 150°C for 72 Hrs

Change in Hardness (Unit)	0
Change in Tensile Strength %	2%
Change in Elongaton at Break %	8%

POTASSIUM STEARATE SK1

STANDARD CURE SYSTEM FOR ACM RUBBER

FEATURES:-

- Cost Efficient
- Excellent Cure Properties
- Improved Initial Mechanical Properties
- Superior Heat Ageing Properties

Parameters	Specificatons
Moisture (%)	9.8 Max
Soap Matter (%)	96.0 Min
Free Alkali (%)	0.10 Max
Neutral Fat & Un-Saponifiable Matter (%)	2 Max
Alcohol Insoluble Matter (%)	1 Max
Water Insoluble Matter (%)	0.10 Max

TYPICAL FORMULATION

Ingredients	Compound A
TRC ACM SA 201	100
Stearic Acid	1
Naugard 445	2
FEF	65
Sulphur	0.3
SK1 (Potassium Stearate)	0.3
NS Soap (Sodium Stearate)	3

Rheometric Propertie (ODR) 180°C for 15 min

ML d Nm	4.83
MH d Nm	20.66
Ts2 minute	1.13
Tc90 minute	7.82
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Change in Hardness (Unit)	0
Change in Tensile Strength %	2%
Change in Elongation at Break %	8%

Syndiotactic 1, 2- Polybutadiene (RB)

- RB contains over 90% of 1,2 bonds.
- The average molecular weight is about 120,00.
- It is a unique Thermoplastic Elastomer of which the crystallinity is controlled so that it comes within about 15% and 30%.

Why RB-820 Over TAIC?

RB-820 is a versatile 1,2-polybutadiene based co-agent that acts as an efficient promoter in peroxide curing systems, improving cure density, mechanical strength, and processability in rubber compounds. It can effectively replace conventional co-agents such as TAC or TAIC while delivering superior performance.

Unique Features of RB-820 as a Co-Agent?

RB-820 is a versatile 1,2-polybutadiene based co-agent that acts as an efficient promoter in peroxide curing systems, improving cure density, mechanical strength, and processability in rubber compounds. It can effectively replace conventional co-agents such as TAC or TAIC while delivering superior performance.

1. Replaces Conventional Co-Agents: It can substitute traditional peroxide co-agents like TAC, TAIC, Liquid PBD, TMPTMA, EDMA, and BDMA, simplifying formulations.
2. Co-vulcanizing & Non-Extractable – RB-820 chemically reacts during curing and becomes part of the rubber network, so it does not migrate or get extracted by oils or solvents.
3. Improves Cure Density (Tight Cure) – RB-820 promotes efficient cross-linking in peroxide systems, resulting in tighter and more uniform vulcanization.
4. Enhances Mechanical Properties – It improves tensile strength, hardness, and overall physical performance of rubber compounds.
5. Better Compression Set – Compounds containing RB-820 generally show reduced compression set, improving sealing performance in rubber parts.
6. Compatible with Multiple Polymers – Works effectively with NBR, EPDM, CR, NR, Butyl, HNBR, and other rubber systems.
7. Ash-Free Contribution with Easy Handling: RB is an organic polymer and does not contribute to ash formation in the final product, making it suitable for applications requiring critical property control. Additionally, being available in pellet form, RB offers easier and safer handling compared to liquid co-agents such as TAIC, improving operational efficiency.

RB-820 acts as a reactive **Polymeric Co-Agent + Processing Aid**, improving cure efficiency, mechanical properties, and processability simultaneously.

Typical Formulations with Results:

RB-820 in EPDM		
	A	B
JSR EP-24	100.00	100.00
RB-820	--	10.00
Black FEF	50.00	50.00
IPOL 2300	5.00	5.00
ZnO	3.00	3.00
Stearic Acid	0.50	0.50
Perkadox 14/40	4.00	4.00
TAC	2.00	--
Cure Time 12' at 180°C		
Shore A Hardness	70.00	71.00
Tensile Strength (Kg/cm2)	160.00	181.00
% Elongation	180.00	190.00
Compresission Set Method B 22 Hours at 150°C	12%	11%

RB-820 in HNBR		
	A	B
HNBR Therban 1707	100.00	100.00
RB-820	--	10.00
Black FEF	50.00	50.00
MgO	10.00	10.00
ZnO	2.00	2.00
Stearic Acid	0.50	0.50
Perkadox 14/40	4.00	4.00
TAC	2.00	--
Cure Time 10' at 180°C		
Shore A Hardness	67.00	69.00
Tensile Strength (Kg/cm2)	204.00	212.00
% Elongation	460.00	450.00
Compresission Set Method B 22 Hours at 150°C	39	33

Compounding Ingredients

Compounding Ingredients

Light MAGNESIUM OXIDE (MAGNESIA)

(Acid Excavenger in Halogenated Elastomer & Plastics)

STARMAG is Light Burned & Reactive Magnesium Oxide of High Purity, isolated from seawater with Chemical process.

STARMAG R & STARMAG 150 are High Activity, **STARMAG M** is Medium Activity,

STARMAG L is Low Activity Grade.

Each grade has special Characteristics such as Good Dispersability & Workability for Various Polymers.

STARMAG CX-150 is Coated so it shows Superior Affinity, Dispersibility & Workability for Various Polymers & Moisture proof, in case of blending with polymers. It has Excellent Water Repelancy.

Starmag			150	M	L	CX-150
Chemical Analysis	Moisture	%	0.5	0.5	0.5	0.5
	Loss on Ignition	%	5.4	2.5	1.5	13.0
	MgO *1	%	97.7	97.7	97.7	98.0
	CaO	%	0.7	0.6	0.6	0.6
	Fe_2O_3	%	0.02	0.02	0.02	0.02
	Al_2O_3	%	0.01	0.01	0.01	0.01
	Acid Insolubles	%	0.02	0.01	0.01	0.01
Bulk Density		(g/ml)	0.59	0.55	0.55	0.60
Average Particle Size *2		(μ)	3.5	3.5	3.5	3.5
Specific Surface Area (BET)		(m^2/g)	137	50	25	110
Screen Residue (75 μ)		(%)	0.01	0.01	0.01	0.01

*1 Measured After Ignition *2 Measured by Laser Diffraction Method

APPLICATIONS

- Chloroprene Rubber (CR)
- Chlorosulfonated Polyethylene (CSM/CSP)
- Halogenated Butyl (CIIR/BIIR)
- Fluoroelastomer (FKM)
- Epichlorohydrin (ECO)
- Chlorinated Polyethylene (CPE)

Adhesive / Coatings CR, CSM, Halogenated Polymers

STARMAG L

Low Activity Light Magnesium Oxide

Great Cost saver for Fluoroelastomer compounds

Typical Formulations:-

FKM (Fluoroelastomers)	100	100	100	100	100
MT Black	20	20	20	20	20
Innovox OH Clacium Hydroxide $Ca(OH)_2$	3	3	3	3	3
Starmag L (Low Activity MgO)	**5**	**10**	**15**	**20**	**25**
	128	133	138	143	148
Mooney Scroch (Ms @ 121°C)					
Minimum viscosity (Vm)	42	49	53	55	59
t5 (min)	17	24	26	25	22
t10 (min)	20	27	32	29	25
Curing Conditions Press Cure 30 Min @ 150°C (Post Cure 24 hrs @ 200°C)					
100% modulus (Mpa)	3.1	3.7	4.5	5.8	6.3
Tensile Strenght (Mpa)	15.3	15.8	18.1	18.6	18.6
Elongation (%)	310	300	300	280	270
Hardness (Shore A)	68	71	73	75	78

Ideal Dosages : 10 - 15 phr for 70 hardness

Advantages:

Reduction in cost Due to Higher Dosage of MgO
Improved Scorch Safety
Improved Modulus/Tensile at same Elongation

Packing:

1kg pouch in 20kg craft paper bag

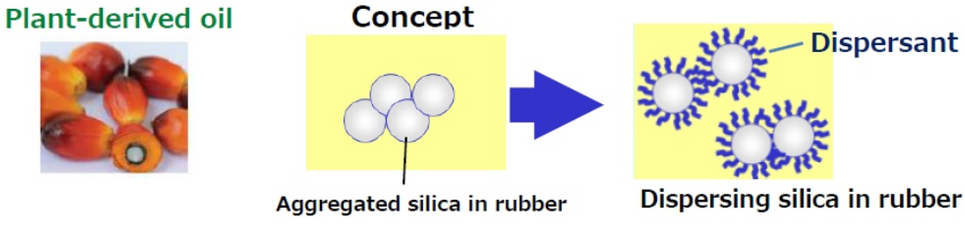
SPLENDER® Excellent Silica Dispersing Agent

Superior grades of Silica dispersing agents from KAO Corporation, Japan

Why Choose KAO's Splender?

SPLENDER is a specially engineered silica dispersant developed by KAO Corporation, Japan, to address the persistent issue of inefficient silica dispersion in rubber compounds. As a breakthrough solution, R-2000 & R-3000 significantly enhances the performance of silica-filled rubber systems by ensuring even filler distribution, reducing viscosity, and improving mechanical properties.

Key Principle Behind this:

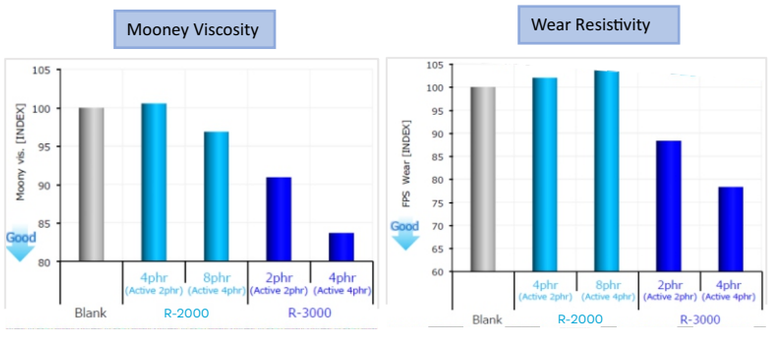


Unique Advantages R-2000 & R-3000 can Provide

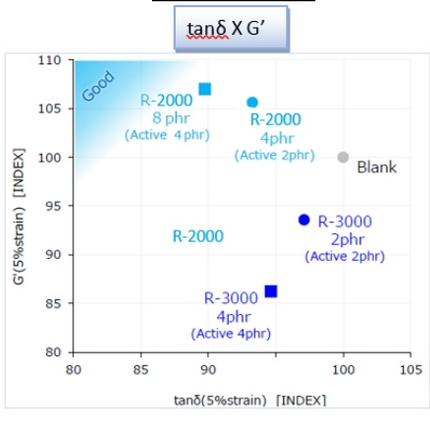
1. **Superior Silica Dispersion**: Ensures even filler distribution, resulting in lower compound viscosity and improved homogeneity.
2. **Reduced Mixing Time**: Facilitates faster incorporation of silica, reducing overall mixing time.
3. **Outstanding Abrasion Resistance**: Reduces abrasion loss, making it suitable for high-durability applications like tires and industrial components.
4. **Improved Mechanical Properties**: Achieves higher rebound resilience, lower heat build-up, and superior tensile strength.
5. **Enhanced Processability**: Promotes smoother mixing, better flow, and consistent compound quality.
6. **Broad Compatibility with Different Curing Systems**: Compatible with both sulfur and peroxide curing systems, adaptable across various elastomers.

Test Formulation

Masterbatch				
		①	②	③
NBR	NBR230	100	←	←
Silica	Nipsil AQ	60	←	←
CP agent	Si69	4.8	←	←
Stearic acid	LUNAC S-70V	**2**	**0** (Active 2)	**2**
Antioxidant	6PPD	1	←	←
Oil	DOP	20	←	←
Dispersant	**R-2000**	-	**4** (Active 2)	-
Dispersant	**R-3000**	-	-	**2** (Active 2)
Final mix				
Zinc oxide	ZnO	3	←	←
sulfur	S	2	←	←
Accelerator	CBS	1.8	←	←
Accelerator	DPG	1.5	←	←



Other Results:



Low Molecular Weight AC Polyethylene Wax

SANWAX – 171 P

(Similar to A-C Polyethylene 617-A*)

Sanwax-171P is compatible with all Synthetic and Natural Rubber, especially compatible with Halogenated Elastomers.

Sanwax -171P exhibits excellent compatibility with Tosoh CSM, (Chlorosulphonated Polyethylene) and EPDM as both have similar linear molecular structure and are of same family. Unlike normal paraffin wax, it has no oily ingredient and is chemically saturated. Sanwax 171 P does not bloom to spoil appearance of Rubber Products.

It is process aid, which increases extrusion rate and gives superior smooth finish in all rubber products,

Applications:
Moulded & Extruded Products, Hoses, Power Cables, Tyre & Tubes, V-Belts & Conveyor Belts Shoe Sole, Printing Rollers, Rubber Blankets, Rice Rollers, etc.

Advantages of using Sanwax-171 P in RUBBER

1	Helps in filler dispersion – shorter mixing cycles, better physical properties.
2	Increases flow properties – higher extrusion rate – more output; smooth Surface Finish
3	Release Agent – eases de -molding , lowers molding defects. Mold surface also remains clean (nofouling). Compound does not stick to Mixers,Mills & Calenders.
4	Sanwax in molten state has viscosities approximately equal to those of paraffin waxes
5	No Blooming – unlike WAXES – Sanwax does not bloom – Green Compound or Cured Product appears good even after exposure to atmosphere/weather over long period of time.
6	Increases the ozone resistance, acts as an antioxidant, hence better ageing properties. This also prevents surface cracking and gives UV protection and longer service life.
7	Improves the flow properties of rubber compounds during injection molding of Pin or Socket assembly of plugging systems.
8	Reduces water absorption, resulting in better Insulation resistance and voltage stability.
9	Prevents sticking of cores in a multi core cables or sticking of cores with outer jacket which is a common problem, because Sanwax 171P reduces inherent tack (especially in the case of chlorinated polymers like CSP, PCP, CPE.). A valuable additive in CABLE insulation & sheeting
10	Reduces the shrinkage of rubber mixes and of vulcanized products
11	Reduces the frosting effect & heat build-up in Carbon loaded compounds
12	Helps high dispersability of pigments – specially recommended for Color Master Batch makers.

* Trade Mark of Honeywell – US

Technical Specifications

Sr No	Parameter	Value
1	Color – Molten APHA (Gardner)	30
2	Viscosity mPa.s @ 140°C (Brookfield)	180
3	Softening Point °C (ASTM E-28-58 T ring & ball method)	107
4	Penetration Hardness (ASTM D 1321-61T – 100g,5s,25°C)	4.5
5	Acid Value	nil
6	Density g/cm^3 (ASTM D 792-60T)	0.92

Type of Rubber	Benefits Of Using Sanwax 171 P	Dosage
Polychloroperene/ Skyprene	Improves processing – easy mill release, better mould flow. Increases Extrusion Rate & gives smooth surface finish to Extrudate. Reduced Die Swell. Non Bleeding. Being Polymeric Process Aide – with low Melting Point & Viscosity values close to Waxes does not affect Cure Rate, Physical Properties.	2-6 phr
EPDM/EPM	Reduces Viscosity of Highly Filler Loaded Compounds making them process able. Increases Extrusion Rate. Improves Mould Flow/Release. Does not affect Cure Rate or Physical Properties.	4-6 phr
Nitrile (NBR)/ HNBR/PVC+NBR (NV)	Very effective process aid, compound sheeting faster & smoother. Reduces Nerve & Shrinkage contributing to better and faster Extrusion/Calendering. Lowers Viscosity there by Scorch Safety is better. Improves Mould Flow & Release	3-5 phr
SBR/PBR	Reduced Viscosity gives better Scorch safety. Improved Mould Flow/Release. The Non Blooming Characteristics leads to No Decrease in Green Tack or Adhesive qualities necessary for Roll overing, Belting & Shoe Sole Applications. Improved Abrasion & Cut Growth Resistance.	2-5 phr
Hypalon/Tosoh CSM/ CPE	Shortened Mixing Cycle, Decreased Viscosity, Reduced Shrinkage & Scorch Sensitivity. Improved Mould Flow/Release, Abrasion & Crack Growth Resistance. Provides excellent handling characteristics during Mill & Calendar Operations. No effect on Color Shade of Vulcanizate.	3-5 phr
FKM/ACM/AEM.ECO	Better mould flow & release with no change in Cure Rate. Improved surface quality of both Extruded & Moulded part. No negative effect on Original & Aged Properties,as well as Green Tack & Adhesion properties.	3-5 phr
Rubber Mixing Aide	Great improvement in Banbury mixing & Mill handling with smooth release of GreenStock. Reduces compound Viscosity there by Processing becomes easy & Extrusion Rate increases.	3-4 phr
Carbon Black Dispersing Agent	Greatly improves Carbon Black dispersion with subsequent increase in Tensile Strength & Hardness.	5 phr
Tyre & Tube Application	Excellent Internal Lubricant for the compounds, facilitating Calender Release. Improved surface smoothness of finished sheet . Does not interfere with building tack or Physical Properties. Modest increase in Air Holding Properties. Improved Extrusion characteristics (rate, finish, shrinkage). Improved dispersion of fillers, Zinc & Titanium Oxides. Better Mould release for Tread Designs. Reduced processing Temperatures at time of Mixing/Extrusion. Excellent Scorch Safety.	2-4 phr
Thermoplastic Rubber for Shoe Sole/ Auto Parts	Extremely efficient flow Aids - greatly assisting Injection at Low Pressure. Reduces tackiness of compound. Flow Marks can be eliminated. Reduction in “White Spots”. Cycle Time can be reduced. Permitting greater use of Radial Polymers for better Abrasion Properties. No interference with Adhesion or Lacquering. No negative effect on Physical Properties.	2-5 phr

SUNNOC

UNIQUE MICROCRYSTALLINE WAX

Sunnoc is Unique Microcrystalline wax. It increases efficiency for Antioxidants in Rubber & Improves Sun & Ozone Cracking Resistance. This is suitable for most Rubber Products especially used for sunlight & Ozone.

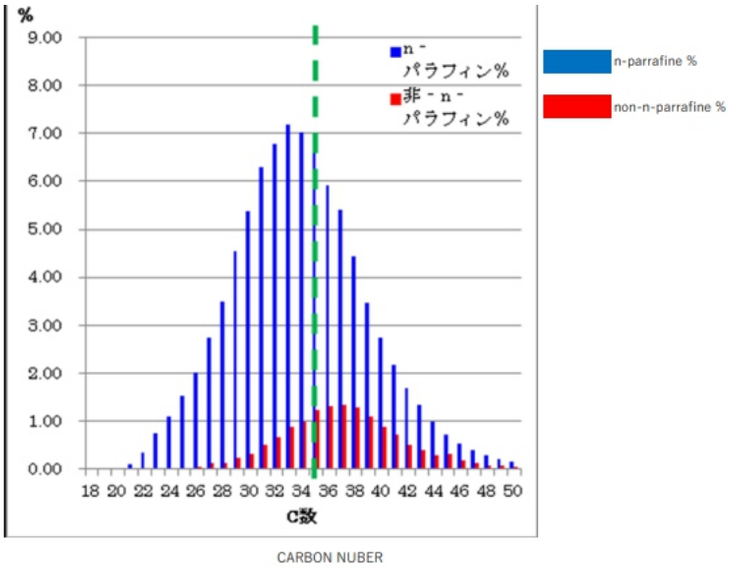
It provides remarkable Antiozonant properties in static Condition.

Typical Specification:-

Test	Method	Specification
Freezing Point °C	JISK6220-1-7.5	65.0 MIN
Heating Loss %	JISK6220-1-7.8	0.30 MAX
Ash %	JISK6220-1-7.9	0.30 MAX
Colour & Appearance	Visual Inspection	White, Granuel

Carbon Distribution Chart is Given Below.

Sunnoc Modified



Typical Composition:-

n-PARRAFFIN	86.3%
Main Carbon	33 Number
NON-n-PARAFFIN	13.7%
Main Carbon	37(1.3%)

Innovox-95

Desiccant for Rubber & Plastic

innovox-95 is a fine particle size, dust - suppressed grade of calcium oxide containing up to 5% mineral oil.

Chemical Analysis	Typical % mass	Specification % mass
Calcium Oxide content (CaO)	94	>92
Ferric Oxide (Fe_2O_3)	0.2	
Alumina (Al_2O_3)	0.2	
Magnesium Oxide (MgO)	0.6	
Silica (SiO_2)	0.7	
Carbon (CO_2)	2.5	
Sulphur (SO_3)	<0.1	<4.0

Physical Properties	Typical	Specification
Appearance	off white powder	
Specific Gravity	3.2	
% less than cum vol at 45 micron (Malvern)	100%	>99.95

All properties measured on the untreated calcium oxide.

Packing:

Innovox-95 is available in 20 kg bag (1kg sachet X 20 nos.) polyethylene - lined paper bags and low-melt polyethylene sachets

Innovox-95 is available in 25 kg bag polyethylene - lined paper bags and low-melt polyethylene sachets

Sachet Weight	within 2 % of nominal weight	>98%
	within 5 % of nominal weight	100%
Bag Weights	within 1 % of nominal weight	100%

Applications:

innovox-95 is used as a desiccant in elastomeric and thermoplastic polymer processing. It is also used in polymer recycling.

Water/Moisture is present in most material. In order to scavenge/absorb his water/moisture Innovox is added as a Desiccant for Rubber Compounds & PVC Plastisols. This absorbs water/moisture and prevent Porosiity, Blisters, which are formed due to water/moisture letting steam trapped during high temperature processing above water boiling temperature of 100°C

ELASTOSET

NOVEL AND UNIQUE ADDITIVE TO STABILIZE EPDM COMPOUND & REDUCE COMPRESSION SET

Elastoset is food contact approved cure stablizier and compression set reduction additive consisting of an activated polymer which gives excellent mixing and dispersion characteristics.

Elastoset will overcome any adverse effects of using high doses of Calcium Oxide for moisture removal in Rubber Compounds. Innovox ultra-fine Calcium Oxide is used as dessicant and Acid Scavenger in Rubber and Elastomer compounds, Which can cotain moisture either from fillers incorporated in the formulaion or by moisture absorption from high humidty environment.

Calcium Oxide (CaO) combines with moisture to form Calcium Hydroxide. The reaction chemically binds moisture and non reversible up to 512^{0}C. The reaction product, Calcium Hydroxide is a powder which incorporates easily and invisibility into the compound, but will also perform as an Acid Scavenger.

In higher humidity environments, or where High Moisture fillers are used, Higher level of Innovox addition may be required to overcome porosity. This can sometimes lead to reduced Vulcanization or increased Compression Set values because of competiton between Zinc and Calcium for reaction with Accelerators.

Normal Reaction

ZnO + Stearic Acid ⟶ Zinc Streate (Zn^{2+} soluble in Rubber)

Zn^{2+} + Accelerator ⟶ Zinc Complex (Active Cross Linking)

With Excess Calcuim Oxide-Competition

CaO + H_2O ⟶ $Ca(OH)_2$(Formation of Ca^{2+})

Ca^{2+}+ Accelerator ⟶ Calcium Complex (Inactive / Reduced Crosslinking)

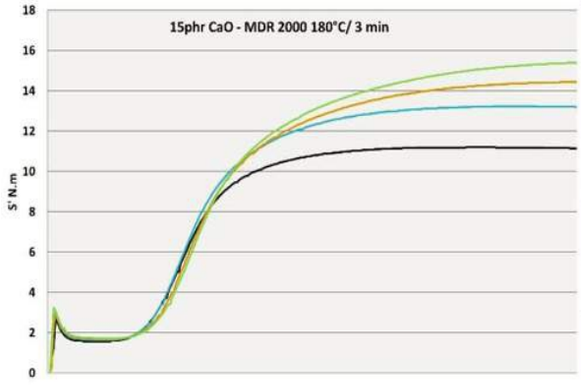
Zn^{2+} + Accelerator ⟶ Zinc Complex (Active Cross Linking)

With ELASTOSET - No Competition

CaO +H_2O ⟶ $Ca(OH)_2$(Formation of Ca^{2+})

Ca^{2+}+ 2Cl ⟶ Calcium Chloride (Does not affect Cross Linking)

Black general purpose EPDM profile with high (15Phr.) Calcium Oxide Loading- result using Elastoset.



Elastoset		Control	1phr	2phr	3phr
Tensile Strength	N/mm^2	10.9	12.1	11.8	11.9
Modulus 300%	N/mm^2	8.1	9.1	10.6	10.7
Elongation	%	488	448	356	350
Hardness	Sh A	70	72	73	73
Compression Set	%	79	64	48	44

Applications:

Elastoset is typically used combination with innovox (Calcium Oxide) in EPDM usually in applications such as Extrusions and continuous Pressureless vulcanization method (e.g. UHF, LCM or Hot-Air vulcanization).

These Application may have high moisture level in the compound, often from high moisture fillers (often lower quality) or high atmospheric humidity during production or storage.

Elastoset plus Innovox can be used to combat the effect of high moisture by enabling increased Innovox addition without affecting finished product properties.

Addition:

Dose is usually between 0.5 and 1phr, or 10-20% of Calcium Oxide addition level. Elastoset should be added at the same point as Innovox. Additon point can be varied to combat the effect of Moisture in Fillers or Atmospheric moisture on High Humidity Environments.

For High Moisture Fillers, Innovox and Elastoset should be added at the start of the Mixing.

In High Humidity, Moisture may often be absorbed if compound is stored and so Innovox and Elastoset can be added near the final mix to overcome this.

Our Technical Team can help with advice on dose and addition point.

Properties:

For product specification see the relevant sales specification and for safety information, see the Material Saftey Data Sheet. Both are available on request.

Packing:

Elastoset available in 15 Kg sacks.

Storage:

Elastoset must be stored inside, in clean dry conditions and unopened packaging. If stored correctly, Elastoset has a minimum shelf life of 12 months from data of production.

SUNPAR® 2280

THE VERSATILE PARAFFINIC OIL A BOON FOR RUBBER INDUSTRY
(A HIGH VISCOSITY & HIGH FLASH POINT PARAFFINIC OIL)

"Sunpar" Oils are made by JAPAN SUN OIL COMPANY LTD. JAPAN through a special process by which they are highly refined and de-waxed.

Sunpar-2280 is suitable for Thermo set Elastomers like NR, IR, IIR, EPM & EPDM and also for Thermoplastic Elastomers Like SBS, SEBS & TPV's.

Sunpar-2280 has the highest viscosity in its class with Paraffinic fraction at 67% lowest Aromatic fraction of 5% and lowest sulfur content when compared with other competitive grades and hence it strikes a balance between compatibility, processibility, Color Stability, higher heat resistance , higher physical properties and above all reduces the requirement of Peroxide, Co-agents &curative dosage .

Salient Features:

1. High Viscosity – High Filler Loading:
High Viscosity of Sunpar-2280 (475cSt. at 40^{0}C) enables easy processing of high Mooney EPDM rubbers which in turn takes in higher filler loading there by simultaneously reducing the cost and giving smooth finish.

2. High Flash Point - Low Volatility:
Due to high refinement and de-waxing Sunpar -2280 has high Flash Point of 321^{0}C hence weight loss at 280^{0}C X 30 minutes is only 1.26% against 1.86% of other grades which is 32.2% lesser volatility. Due to this lesser volatility it eliminates emission during mixing and processing.

3. High Oxidation Resistance:
Due to High Paraffinic (67%) and Low Aromatic (5%) nature and presence of long side chain on the rings with high unsaturation, Sunpar 2280 has the highest Oxidation resistance & Heat Ageing resistance when compared with competitors grades.

4. Lower Demand For Peroxide & Co-agents:
The Very Low Aromatic Fraction of Ca 5% and the lower Sulfur content of the Sunpar-2280 reduces the requirement of Expensive Peroxides and Co-agents for EPDM compound .The same Physical properties could be achieved by reducing the dosage from 3 to 2 Phr.

5.High Color Stability – UV Resistance:
Sunpar -2280 is highly refined and contains higher level of saturation and lend higher "Uv"resistance there by gives higher color retention.

6.Low Temperature Flexibility:

With a pour point of (-) 9°C Sunpar-2280 has better low temperature flexibility when compared to the grades of competitors available in the market.

7.FDA Approved Grade:

FDA approved ingredients should be used in the rubber compound, this is an essential requisite for the products to be exported to USA Sunpar-2280 complies to the FDA regulation of paragraph "C". Hence could be used in EPDM rubber products made for the equipments of food industry and water line seals and gaskets.

Applications:

1.Thermoset Rubbers – EPM, EPDM, IR, IIR & NR

• Roof Membrane • Cables • Hoses • Profiles • Automotive Rubber Goods • Sealants • Process Aids • Coating Agents.

2. Thermoplastic Elastomers:

The Sunpar 2280 is also an excellent choice for use with thermoplastic elastomers such as SBS, SEBS, TPE & TPV. It offers the thermoplastic producers a balance of compatibility, improved processability, colorability and low volatiles. compared to similar oils.

FDA Status

FDA approval is required to export products to the Europe Countries. So, the materials used in the products should conform to FDA regulations. This oil meets the FDA requirements of Paragraph "C". If required, customer will be provided with the test certificate.

Specific Advantages:

Voltaility

Sunpar 2280 generates the lowest amount of volatiles. In comparison, the competitive equivalent oils produces 28 to 48% more volatiles. Accordingly, Sunpar 2280 offers a more cost – effective solution to less evaporation loss to air and reduce employee exposure.

Peroxide Cure System:

The lower aromatic content of Sunpar 2280 is particularly significant in Peroxide Cured applications where it can reduce the curative loading and therefore, the cost of expensive Peroxide Curatives. Research study shows that Peroxide dose can be reduced up to 30 – 40% when using Sunpar 2280.

Typical Properties of Sunpar-2280

Sr No	Paramater	ASTM Test method	Typical value	Remarks
1	Viscosity Index	D 2270	95	—
2	Viscosity cSt @ 40°C	D 445	481	—
3	Viscosity cSt @ 100°C	D 445	31.20	Higher Better- Less Volatile during processing/curing. Service life of product better/better heat ageing resistance
4	Flash Point°C	D 92	312	
5	Pour Point°C	D 5950	-12	Easy to use
6	Color	D 1500	5.0	Good
7	Gravity API	D 1250	27.3	—
8	Density @ 15°C Kg/dm^3	D 4052	0.8905	—
9	Acid No mgKOH/g	D 974	0.02	—
10	Sulphur mass%	D 4295	0.15	Negligible – will not interfere with curing
11	Aniline Point°C	D 611	128.9	Low Aromatic content – Less dosage of Peroxide required. Oxidation resistance. Better color retenntion.
12	Molecular Weight g/mole	D 2502	690	—
13	Refractive Index @ 20°C	D 1747	1.489	—
14	Aromatic Content - (Ca%)	D 2140	4	Lower better
15	Naphthenic Content - (Cn %)	D 2140	25	—
16	Paraffinic Content - (Cp%)	D 2140	71	Higher Better
17	Asphaltene	D 2007	0	—
18	Volatility 107°C X 22 hrs Mass Loss	D 972	0.03	Lower than permitted Max
19	UV Absorption 260 nm	D 2008	1.82	—
20	PCA Extract Content mass%	IP 346	< 0.4	Non Carcinogenic
21	FDA 21 CFR 178.3620 (C)		PASS	Can be used in products coming in contact with food

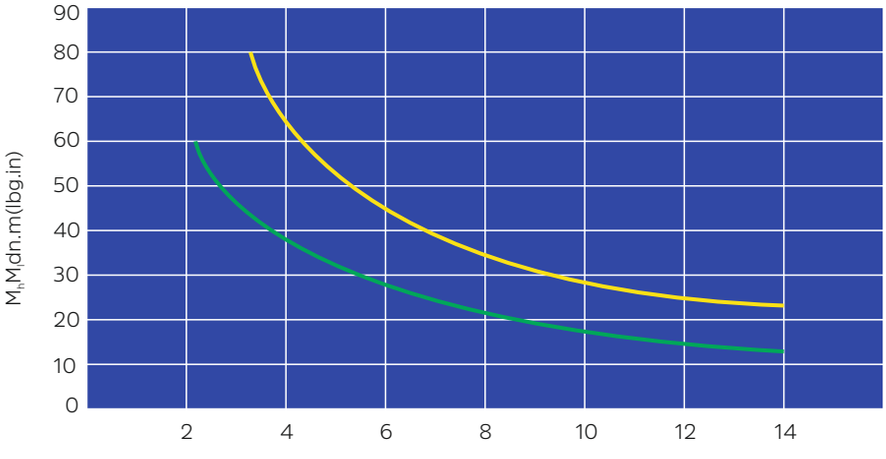
Typical Comparison of total Aromatic & Volatility

Product	Total Aromatics Mass% (D2007)	Volatility Mass% (D972)
Sunpar 2280	24.0	0.03
Competitor A	33.3	0.07
Competitor B	29.8	0.35
Competitor C	35.9	0.8

Comparative Volatile Weight Loss

Product	Weight Loss Mass% 30 min. @ 535°F	% Increase Relative to Sunpar 2280
Sunpar 2280	1.2607	-
Competitor A	1.6173	+28
Competitor B	1.7397	+38
Competitor C	1.8647	+48

Peroxide Loading VS. Total Aromatics



Certified ISO 9001 **Reach Restoration**

For your requirement :
Direct Import : Available in 20 Mt ISO Tank very competitively
Ready Stock : Available subject to Unsold and/or prior supply schedule

PHOSPHANOL RL – 210

POLYOXYETHYLENE ALKYLETHER PHOSPHATE

Process aid for AEM/ACM/HT-ACM acts as a Lubricant and helps Improve mill Release of Sticky Compounds, Reduces Mould fouling and helps Part Release. Recommended to be used along with Stearic Acid and Steryl Amine.

Dosage 0.5 ~ 2phr.

Standard Values:-

Chemical Composition	Polyoxyethylene Alkylether Phosphate Approx. 80% (Polyoxyethylene alkylether is contained by approx. 20% as non-reaction substance.)
Appearance	Milky White Solid
Color (APHA)	200 max.
pH (25°C , 1% aq. Solution)	3.0 max
Moisture Content (%)	1.0 max
Acid Value #1 (KOHmg/g)	90.0 ~ 100.0

Testing Method:-

Appearance	Observation
Color (APHA)	According to JIS K 0071-1
pH (25°C, 1% aq. Solution)	According to JIS Z 8802 (Glass Electrode Method)
Moisture Content (%)	According to JIS K 0068 (Karl Fischer's Method)
Acid value # 1 (KOHmg/g)	According to Toho Chemical Original Method

Silimar to Vanfree VAM and Ofalub SEO

FARMIN 80

(STEARYL AMINE)

Farmin 80 promotes release of all types of Rubber from Rubber Mills and Calendars. Low melting point facilitates excellent dispersion. It is recommended to add in early so Sticking doesen't get started. Addition of Stearyl Amine helps in Mould Release of AEM/ACM/HT-ACM. In addition it promotes excellent processing without scorching compounds. Especially recommended for High Mooney compounds. Dosage suggested is 0.2~0.5 phr. Higher dosage may retard curing speed. Silimar to Armeen 18D and Ofalub STA.

Product Specification:-

Chemical Name	Stearyl Amine
INCI NAME	STEARAMINE
Appearance	Solid
Typical carbon chain composition	C16:6%, C18:92%
Colour	80> (APHA)
Freezing point(°C)	49-51
Total amine value	206-212
Water content(%)	0.5>

Packing: 20Kg (Material in Pellets)

Application :-

Raw materials for cationic surfactants. Raw materials for amphoteric surfactants. Corrosion inhibitors,Raw materials for emulsifier for asphalt, mold release agents for rubber, flotation agents, anti-caking agents for fertilizers, fuel additives, sludge inhibitors, etc.

CARNAUBA WAX
REFINED POWDER

PROCESSING AID FOR FLUROELASTOMER (FKM) COMPOUND

Introduction

A general purpose processing aid useful in all types of molded goods made from FKM. It provides smooth surface, excellent mill and mold release characteristics. It has little or no effect on Vulcanizate.

It is particularly Effective as extrusion aid allowing compounds of FKM to **Extrude Faster, Cooler and Smoother.** It provides shining surface finish.

Best suited for molding operations with automatic part removal.

Typical Parameters	Specifications	Test Methods
Visual Appearance	Golden Yellow	
Moisture	0.5% Max	ASTM E871/E872
Volatile Matter at 175°C (Including Moisture)	1% Max	ASTM E871/E872
Melting Range or Temperature	80-86°C	ASTM E324
Particle Size (Mesh)	20-50	ASTM D 1511
Ash Content	≤ 0.25%	ASTM D4574

Application

Carnauba Wax is recommended for use in FKM for the following Applications O-Rings, Seals, Molded Component, Diaphragms, Hoses, Tubes and Cords.

Dossage

0.5 - 1Phr.

Master Mix - PN-280

PN-280 is 65% Premix of Liquid NBR & Silica available in dry milky white powder form. This helps eliminate difficulties faced in handling viscous & sticky Liquid NBR. PN-280 is a relatively free flowing powder after long storage period. PN-280 is used as a cross linkable Polymeric Plasticizer for components made using NBR.

Salient Features:

- PN-280 is 65% Active.
- It is Non Migratory in Nature preventing extraction and negative swelling in oil especially excellent to use with High ACN content NBR to provide positive volume swelling.
- Excellent processibility to control viscosity by regulating the doses.
- Easier dosage & accurate weighing.
- It Improves Flow and Knitting properties.
- At higher dose of 10-15 parts, it Improves Modulus, Compression set and abrasion properties.
- It is Blendable with most Polar Rubber like NBR, CR, CSM, ECO and CPE.

Chemical & Physical Properties

Property	Specification
Appearance	Powder
Active NBR Content	65 ± 2%
Colour	Off White
Ash Content %	35 ± 1%
Bound ACN % of Liquid NBR	28 - 30
Volatile Content (Max)	2.5%

Applications:

• Low Hardness Compounds • Thin cross section Hoses • Molded Goods
• Roll Covering Compounds •. Cots & Aprons

Comparison of Liquid NBR and PN-280

SR No	Ingredients	Control Compound	Compound 1	Compound 2
1	NBR 230 S	100.00	100.00	100.00
2	ZINC OXIDE	5.00	5.00	5.00
3	STEARIC ACID	1.20	1.20	1.20
4	SULPHUR	0.80	0.80	0.80
5	J-PR-4168	5.00	5.00	5.00
6	FEF	72.20	72.20	72.20
7	N280 (LIQUID)	6.00	00	00
8	PN280 (POWDER)	00	6.00	8.80
9	DOP	10.00	10.00	10.00
10	TMTD	1.20	1.20	1.20
11	CBS	1.20	1.20	1.20
	Total	202.60	202.60	205.40

Initial Properties

MOONEY VISCOSTTY	$ML_{(1+4)}$@ 100°C	47.44	48.25	46.67
ML d Nm	ODR @170°C, 10 mins	14.22	15.78	16.89
MH d Nm		31.27	19.16	21.66
Ts2 minute		1.3	1.43	1.52
Tc90 minute		1.68	1.67	1.85
Shore Hardness (Sh A)		67	67	65
Specific Gravity	CURED @165°C,10 mins	1.208	1.208	1.195
Tensile strength ,Kg/CM^2		148.54	163.97	145.32
Elongation at break,% (Min)		415	446	510
After Ageing Properties				
Shore Hardness (Sh A)	Heat Ageing @100°C, 72 Hrs	74 (+7)	75 (+8)	70 (+5)
Specific Gravity		1.215 (+0.58%)	1.217 (+0.74%)	1.199 (+0.33%)
Tensile strength, Kg/CM^2		160.09 (+7.77%)	160.26 (-2.26%)	142.73 (-1.78%)
Elongation at break,% (Min)		251 (-39%)	212 (-52%)	311 (-39%)

Plasticizers

Plasticizers

ADK CIZER - Plasticizer for Rubbers

ADK CIZER RS-series are Designed especially to improve Long Term Heat Aging properties and Low Temperature Flexibility for Elastomers. ADK CIZER RS Series are particularly effective to NBR, ACM, AEM, HT ACM, ECO, HNBR, CR, CSM, PU etc...

ADK CIZER	RS-107	RS-700	RS-705	RS-735	RS-759	PN-5090	C-9N	PN 6122	C-8BF
Properties / Composition	Polyetherester Type	Polyetherester Type	Polyether Type	Polyetherester Type		Adipic Acid Polyester Type	Tri Isononyl Trimellitate (TINTM)	Benzonate Ester	Trimellitate
Viscosity : mPa·s(25°C)	20	30	10	80	25	10000	210	125	220
Specific Gravity : 25/25°C	1.020	1.005	0.996	1.043	1.45	1.128	0.980	1.12	0.97
Color : APHA	60	80	100	120	300	60	100	120	-
Acid value : KOHmg/g	0.4	0.1	0.1	0.3	0.5	0.3	0.3	0.2	0.1
Flash point : °C	215	221	>282	252	>200	>282	260	214	265°C
Pour point : °C	-47	-53	-7	-8	-	-7	-	-40	-

ADK CIZER	Advantages
RS - 107	Excellent in low Temperature Property and Heat Aging Stability.
RS - 700	Improved type of RS - 107. Excellent Heat Aging Stability for Long-Term use.
RS - 705	Provide Excellent Low Temperature Flexibility.
RS - 735	Excellent Heat Aging Stability for Long-Term use, Better heat aging stability than RS-700.
RS - 759	It is especially designed to impart excellent low temperature flexibility and heat Resistance.
PN - 5090	A very low extractable Eco-friendly Plasticisers, Excellent oil resitance.
C-9N	Excellent Heat ageing Stability , Volatility & Electrical Insulation property. Mainly used for Wire & Cable at High Heat temperature, Automotive upholstery, etc.
PN-6122	Good Compatibility for Polar Rubbers, High Resistance to extraction by oil.
C-8BF	Very high heat stability, Bisphenol Free

Recommendations		
Synthetic Rubber	**Sulfur or Amine Cure**	**Peroxide Cure**
AEM	**RS-735, RS-759, PN-6122**	**C-9N**
ACM / HT-ACM	**RS-735, RS-759, PN-6122**	**-**
H-NBR	**RS-700, PN-6122, C-8BF**	**C-9N**
ECO	**RS-700, PN-6122**	**-**
NBR	**RS -705, RS-700, PN-5090, RS-107, PN-6122, C-8BF**	**-**
CSM / CR, CSP, CPE, CR	**RS-107, RS-700**	**C-9N**
PU	**PN-6122**	-

CCP CIZER D190 (Adipate Polyester)

Phthalate Free Plasticizer

CCP D190 is a newly developed **Lower Viscosity Polymeric Plasticizer**, achieving an easy handling and processing performance that can be used for non-phthalate requirement product.
Good High Temperature Resistance, good Low Temperature properties and low volatility of D190 make it a highly desirable plasticizer for PVC.

Typical Physical Properties

Appearance	Transparent Pale Yellow
Molecular Weight	800
Freezing Point	65°C
Flash Point	238°C (open cup)
Ester Content	98%
Pour Point	−45
Boiling Point	400

Applications

As Non-Phthalate plasticizer for PVC product trend is gradually widen, CCP D190 is one of the best choice can fully satisfy customer's requirement CCP D190 with excellent physical and chemical property can be used for applications such as Medical Glove, Sheeting, Leather Cloth and Children Toys product..

CCP D190 also successfully substitute DOP in some Rubber Industry because of it's good Heat & Cold Resistance.

PN 5090

A very low extractable, Eco-Friendly Polyester plasticisers especially suitable for FKM Compound.

A High Viscosity Polyester type Plasticizer with following properties compared to PN 350.

Typical Physical Properties PN 5090

Parameters	Unit	PN 5090	PN 350
Viscosity	mPa.s (25°C)	10000	10000
Specific Gravity	25 at 25°C	1.128	1.104
Refractive Index	At 25°C	1.467	1.466
Freezing point	°C	-10	-15
Solubility Parameter	-	9.5	9.3
Plasticising efficiency	-	1.31	1.32
Flash Point	°C	>282	>282
Acid Value	KOH mg/gm	0.3	0.3
Colour	APHA	60	60
n-Heptane Extract	/mg	5	15

Salient Features

A. Eco-Friendly & Low Volatility.

B. Doesn't include restricted substances like DEHP(DOP), Bisphenol A & substances related to PRTR law of Japan.

C. Very low extractable amount when extracted in n-Heptane. N-Heptane extract of PN 5090 is 5/mg compared to 15/mg than PN 350.

D. High Resistance to extraction by oil & fuel provides Low Volume Swelling in contact with oils at elevated temperatures.

E. Resistance to self-degradation or disintegration in elastomer vulcanizate.

F. Very good Compatibility with Polar Rubber like NBR, ECO, XIIR, ACM, FKM, and AEM.

G. Good Low Temperature properties which Reduces Tg of compounded rubber Especially applicable to FKM / Viton compound.

Guideline formulations with FKM Rubber

Ingredients	Formula A	Formula B	Formula C	Formula D
FKM Copolymer	100	100	100	100
PN 5090	0	3	6	3
Starmag 150	3	3	3	3
Innovoh	6	6	6	6
Carnauba Wax	0.5	0.5	0.5	0.5
MT Black	22	30	5	45

Press Cure: 10 Minutes at 170°C Post cure: 24 Hours at 230°C

PROPERTIES	Formula A	Formula B	Formula C	Formula D
Shore A Hardness	70	70	54	80
Tensile Strength Kg / Cm^2	132	128	110	130
% Elongation	230	260	280	215
% Compression set	19.5	20.6	22.8	21.2

Rubber Chemicals

Rubber Chemicals

ACCEL - EM 33

Blend of thiurms, dithiocarbamates and etc.

Accelerator
ACCEL ®

NON BLOOMING ONE PACK BLENDED ACCELERATOR FOR EPDM
Uniform dispersion due to dust suppressing oil Coated for Optimum Cure

Appearance : Yellowish Brown Powder

Melting point : 65°C min.

Characteristics :

ACCEL-EM33 is a accelerator for use in EPDM. No effect on scorch and also provides high speed of cure and gives excellent vulcanizate properties. EM33 also inhibits blooming and staining. Generally 2-3 accelerators are used for EPDM curing, while ACCEL-EM 33 alone is enough to produce good results of vulcanization, without complexity and errors which may occurred during handling many accelerators. ACCEL EM33 is easy to handle as readily disperses in rubber compounds.

Dosage : 2-5 Phr

Application : Every type of EPDM products including Industrial Goods.

Packing : 20 kgs. net in paper bags

SUSTAINING ORIGINAL SHADE (COLOR) OF YOUR PRODUCT HIGH CURE RATE SIMPLE DESIGN CURE SYSTEM

ANTAGE 3C

Antioxidant
ANTAGE ®

N-Isopropyl-N'-phenyl-p-phenyenediamine [IPPD]

Appearance: Purplish brown to dark purplish brown flakes or granules.

Melting Point: 72°C min.

Characteristics: Antage 3C (4010) exhibits resistance against heat, oxidation and ozone. Specifically fitting for NR & also SBR, BR, NBR etc... 3C is an excellent Antioxidant providing resistance against Ozone, Heat, Flex-cracking & weathering. It is equally effective in resisting ageing due to the fouling effects of copper etc.. Recommended dosage of 3C is 0.5 phr or more produces a good effect, its joint use with other Anti
Oxidant and Anti-Ozonant
wax leads to superior results.

Dosage (phr): 0.5 to 3 for general use

Application: Tires, Belting, Cable, Industrial use, Black Mackintoshes, Footwear,etc.

Packaging: 20 kgs. net in paper bag.

Equivalent: • Vulkanox 4010NA(L)
• Santoflex IIPD(F)

ANTAGE AW / AW-P

Antioxidant
ANTAGE ®

6-Ethoxy-2,2,4-trimethyl-1, 2-dihydroquinoline[ETMDQ]

Appearance: Dark brown viscous liquid and powder

Characteristics: Antage AW-P provides strong resistance against ozone, flex cracking & heat deterioration. AW-P is exceptionally effective in preventing the birth & growth of ozone cracking. Even better effects can be obtained when used in combination with ANTAGE 3C and Anti-Oxidant wax. AW-P shows No blooming & no adverse effects on vulcanization, however AW-P is staining. AW-P readily disperses into compound.

Dosage (phr):

	ANTAGE	OZOGUARD G	
NR,IR,BR	0.5-1-2	1-2	0.5-1-2
SBR,NBR	1-2-3	2-4	2-3

Application: Tires, Belting, Hoses, Wire and Cable covering and other Industrial goods.

Packaging: 200 kgs. net in drums for liquid 12 kgs. net in tin cans for powder

Equivalent: • Vulkanox EC (L)
• Santoflex AW (F)

ANTAGE OD / OD-P

Antioxidant
ANTAGE ®

Diphenylamine derivative

Appearance: Dark brown viscous liquid or powder

Characteristics: Antage ODP gives resistance to heat, oxygen aging & flex cracking. Recommended for use in NR, CR, SBR & NBR etc... with minimum staining & discoloration. It readily disperses and show no tendency to bloom in addition to heat & oxygen aging. It also serves as a copper & manganese inhibitor. In addition, it acts as an very efficient antioxidant for CR, providing outstanding protection against Heat, Weather & Ozone.

Dosage (phr): 0.3 to 3.5 for general use

Application: Footwear, Rubber-coated Fabrics, Tires, Tubes, Latex products, Adhesives, etc.

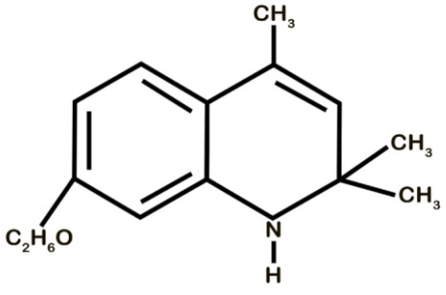
Packaging: 200 kgs. net in drums for liquid 20 kgs. net in paper bags for powder

Equivalent: • Antage ODP
• Qurenti OCD

ANTAGE AW-P

STRONG ANTIOZONANT

Molecular Structure



Antage AW-P is an Antiozonant which protects the Rubber Articles from Ozone attack and in addition to that it enhances Heat Resistance and Protection from Oxidation.

General Properties

Chemical Composition	:	6-Ethoxy-2 , 2,4-Trimethyl-1 , 2-Dihydroquinoline
Appearance	:	Dark Brown Powder
Specific Gravity	:	1.02 to 1.06
Volatile matter	:	0.5 %
Ash content	:	0.3 %
Solubility	:	Benzene, Ethanol , Acetone, Ether , Gasoline, Carbon disulphide & Carbon tetrachloride. It is insoluble in water.

Antiozonants are chemical that delay the Ozone degradation by inhibiting the formation of " free – radicals " and prevent the propagation of " free – radicals " which causes the degradation of the Rubber Articles at normal (Room Temperature) and Elevated Temperatures (Heat Ageing).

In simple term Antiozonants protect the Rubber Goods from the attack of Ozone – "O_3" and Antioxidants protect the Rubber Goods from the attack of Oxygen-"O_2".The common chemical enity which causes the degradation of rubber goods in both the cases is the "free-radicals"

Function

Antage AW-P (ETDQ) has very low level of Aminic Impurities and higher level of Dimer and Trimer % hence the Free radical scavenging and propagation is highly efficient. In addition to that , " Antage AW-P" has an Ethyl Pendant Group which protects the Rubber from further attack by the free radical lent by Ozone. The normally used "TDQ's contain Aminic " impurities which activate sulphur and reduces scorch safety of the compound. They also have lower % of Dimer and Trimer which are the active entities for the prevention of Free radical attack and propagation of free radical.

This is unique of Antage AW-P which does not have a parallel products in the industry. Given below is the table of Comparison which clearly shows the high purity level and higher content of effective entities in Antage AW-P which makes it a unique Antiozonant.

Pigments

Pigments

CHROMIUM OXIDE G5

INORGANIC GREEN FILLER FOR FKM

Chemical Name :- Dichromium Trioxide

Chromium Oxide G5 is a Heat Stable chrome oxide green pigment. In this pigment Chromium is in Trivalent form. Trivalent chromium is not toxicologically harmful. Chromium oxide green is insoluble, chemically inert, migration-proof, and generates no warpage in polyolefins. Its fastness properties are excellent, including a very high Temperature Resistance. The chromium oxide has a Mohs Hardness of 9. It can be used effectively for making green Rubber and Plastics compound.

Property	Unit	Value
Drying Loss	%	0.04
Ignition Loss	%	0.08
Cr_2O_3	%	99.54
So_4	%	0.03
Residue On Sieve (+45 µm)	%	0.02

Other Products

Other Products

NeoBag

NeoBag is low temperature melting bag used to pack compounding ingredients which help to keep the mixing area clean.

Advantages NeorBag over PE Bags.

NeoBag is made of low melting point, Low Crystallinity Syndiotactic 1, 2- Polybutadiene Resin (RB). RB has a low melting point as well as a low melt viscosity in comparison with Polyethylene. NeoBag begins melting at lower temperature which helps release additives faster into the compound thereby helping speed up mixing cycle leading to energy saving.

Advantages NeoBag over EVA Bags

PE/EVA bags don't cure with sulfur hence remain in the compound as contaminant/undissolved particle which often are reason for failure of component. NeoBag form an integral part of Vulcanisate and doesn't remain as impurity in the system providing following advanatges.

Parameters	EVA Bag	NeoBag
Melting point	80-100°C	80°C
Ease of Melting and dispersibility	Melts by higher Calorie ~71J/g	Melts by lower calorie ~25J/g
Curability with rubber	Doesn't cure in Sulphur / Accelerator system	Easily cured by both conventional Sulphur and Peroxide system
Crosslinking behaviour	Doesn't crosslinked in Vulcanised compound and remains as impurity	Produces cross link network structure with Rubber
State of identity inside polymer	Remains as unreactive unknown impurity, adversely affecting product life especially in thinner components like O-Rings, Oil Seals, Diaphragms, Hoses, Inner Liner etc...	It remains as an inseparable grafted network structure after vulcanization.
Influence of Tensile properties	May induce flaws due to its nonreactivity resulting in a chance of obtaining lower Tensile properties	It doesn't induce flaw and has the ability to enhances Tensile properties
Influence of Compression set	Not known	It is well known that Syndiotactic Polybutadiene acts as an effective co agent in Peroxide curing resulting in reducing compression set of the product
Influence of Dielectric properties	Remains as polar impurity and can reduce the volume resistivity of the product	There is no negative effect on Volume resistivity
Dynamic properties same thickness of bag	EVA has a poor Dynamic property. And Eva bags can adversely effect on dynamic properties	Polybutadiene improves dynamic properties of the final product
Puncture resistance on	Lower Puncture resistance	Higher Puncture resistance

ASTM REFERENCE OIL

(IRM 901, IRM 902, IRM 903)

To develop Oil Resistant Rubber Component Rubber Testing Oils (ASTM 1,2 & 3) are required. By making use of these oils Rubber Component can assure about its Resistance to various Solvents and Oils. The Rubber products are Immersed in these Oils for a Specified time and at a Specified Temperature and then tests for Tensile Strength, Hardness, present Elongation at Break, and present volume swell are conducted. ASTM Standard D471 Defines various Standards for these tests.

We offer ASTM Testing Oils to our Customers at the most affordable prices as per industry standards

Specification:

Test Description		Method (ASTM)	IRM 901	IRM 902	IRM 903
Gravity, API		D287	28.8±1	19.0~21.0	21.0~23.0
Aniline Point	°C	D611	124±1	93±3	70±1
	(°F)		(255±2)	(199±5)	(158±2)
Viscosity	@38°C (100°F)	D445	-	-	31.9~34.1
	@99°C (210°F)		18.7~21.0	19.2~21.5	-
V.G.C		D2140	0.790~0.805	0.860~0.870	0.875~0.885
Flash Point	°C	D92	243 min	232 min	163 min
	(°F)		(469)	(450)	(325)
Carbon Type	Cn%	D2140	27 avg	35 min	40 min
	Cp%		65 min	50 max	45 max

Also available Parafinic oil Sunpar® 2280 from ready stock in 200 Liter drums and 25 Liter cans.

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