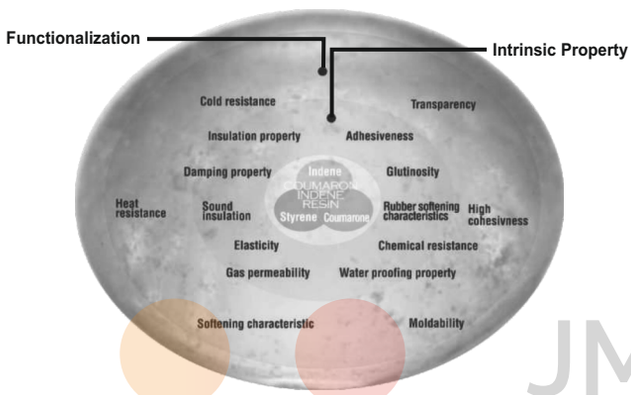
Made in JAPAN

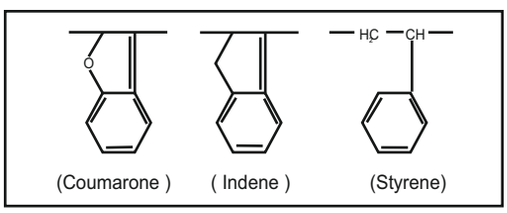
COUMARONE INDENE RESIN G 90

Genuine Low Molecular Weight, Consistent Quality C.I. Resin

PROVEN PERFORMANCE IN HIGH QUALITY RUBBER COMPOUNDS, ADHESIVES, ANTICORROSIVE, PAINT & COATING

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





C.I Resin Synthesizes 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 HAS 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 • 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
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	-	6,000-10,000	10	1.5Max.	1.1	220

Applications of G-90

- 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.
- Tackifer & Softner specially High, Mooney Rubbers.
- Butyl Tube Tackifer against Phenolic Resin.

Applications of H-100

- Low Molecular Weight <700, compared to PF Resin-helps In Faster Dissolution, Solubility And Strength
- Colour is Light Amber compared to dark brown colour of PF resin-hence better aesthetics
- Effective Anti Corrosive Coal Tar Chemistry. Helps In Protecting Ships Hull For a Long period of time.
- **Excellent tack retention**
- Excellent heat resistance
- **Adhesion Property to The Steel Surface.**
- It can be Blend upto 33% of PF Resin in Rubber Adhesive.

GRADE	MAIN APPLICATIONS
G-90	Rubber Compound, Rubber Products, Retread and New Tyre, Adhesive, Gum Compound, Friction Compound
H-100	Paint (for Ballast Tank), Anti Coosive Paint for Ship's, Adhesive, Electronic Material (for Sealing Materials)
V-120	Adhesives, Paint (for Building Materials, Automobile, Container, etc.), Retread and New Tyre.
V-120S	Adhesive for Cloth Tape and Kraft ape (Special Grade with Low Odor)
L-5	Recycled /Retread Tyre, Wooden Sleeper (Corrosion Protection or Railways), Wood Coaaating
L-20	Belt, Blanket, Retread and New Tyre, Rollers
L-80	HighViscosity for tyre wet and dry compound application.

In solid Rubber Compounding many types of Resins are used. The most commonly used are Wood Rosin and Petroleum Resin. However both the Resins have limitations in Compatibility & in Improving final Quality of Compound when Compared with C.I. Resin

IN THIS RESPECT COUMARONE INDENE RESINS HAVE A TREMENDOUS ADVAANTGE OVER THE OTHER RESINS:

C.I. Resin has Double Bonds in Allyl Group Inside Chain Possessed by (Observe - Coumarone and Indene Molecular Structure). This gives effective advantages such as:

A. Excellent GreenTack, Knitting between Polymer & Fillers
B. Reduces Mixing Time (due to interaction with double bonds present in Rubber Polymeric Chain). SAVE POWER
C. These double bonds get cured during Vulcanization, Effectively **enhances physical property** of Vulcanizates and **Increasing the Cross-link density.**

Low Molecular weight of C I Resin G-90 (MW 700) against Petroleum Resin (MW 2000):

A. Faster incorporation in to Rubber Compound
B. Easy migration to surface to maintain TACK over long period of time (a surface phenomenon)

C.I. Resin is used as **Polymeric Plasticizer**. Acts as Excellent Tackifier, Softener, Reinforcing and Processing Aid in the Compounding of Range of Rubbers viz. **SBR, S-SBR, BR, NBR, CR, EPDM, CSM, CPE, NR, Acrylic Rubbers.**

In NBR it shows below advantages.

A. Avoid Knitting problem in manufacture of O-Ring , Seals and Thicker Mouldings, Rice Roll, Industrial & Printing Roll Compounds, High Pressure House, Belting, etc.
B. It helps in reducing crystalinity of Sulphur during mixing and enhances diffusion / dispersion of Sulphur in NBR rubber matrix.
C. It prevents negative swelling (shrinkage) and enhances positive swelling in Grease and Oil environment in service for NBR compound.
D. Improves Knitting properties in Fabric.
E. Prevents Sulphur blooming from unvulcanised compound during storage.

Secondly, BR, SBR, NBR, EPDM and CSM Rubbers do not have Inherent Green tack. By Adding 3 to 8phr.of C.I.Rein, Depending on Rubber, **gives very Good Green Tack needed in Mouldings, Extrusions, Roller building, Fabric coatings, Cord Bonding ,etc.**

HIGH MOONEY and Dry, Partially GELLED POLYMERS which have the Problem of Band formation on Open Roll mill, by the Addition of C.I Resin, very Fast and Tacky Band Formation Gell breaking Occurs which Results in Faster Mixing, Quick and Compact Filler Incorporation Smooth Finish SAVES MIXING TIME & POWER SAVING.

As a result Properties like **Tensile and Tear Strength increases Dramatically.** It also **improves Abrasion Resistance**. **It improves Mould Flow** resulting in Thin Flashes, Perfect moulding shape, **Faster Extrusion Speed** and Compactness in big Industrial Rollers.

In CR and EPDM it helps in reducing Nerviness of the Compound which helps in **Faster Moulding and Extrusion Speed during Mixing Process compared to Petroleum Resin (MW-2000), C.I Resin G-90 (MW-700) which has low molecular weight** helps promotes **Quick Filler Dispersion and Acts as Polymeric Plasticizer. In High Mooney** Rubber C.I. Resin helps to Quickly Breaks Nerves as a result **Final Compound Mooney Viscosity reduces** enhances flow properties and **Higher Filler incorporation**.

C.I. RESIN DOES NOT CONTRIBUTE TO ASH CONTENT OF RUBBER COMPOUND.

A typical Illustration in NBR standard moulding compound, shows, C.I Resin **improves the flow of the compound** and **ecause of its Plasticizing nature it Aids in better Dispersion of Fillers** and thereby the Maximum Torque is increased which in turn **gives Improved Tensile Values** and **Better Tear Strength**.