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 FINAL QUALITY OF RUBBER COMPOUND

COUMARONE
- Rubber Softening, works as Process Aid, Increases TACK
- High Cohesiveness-Better knitting, Chemical Resistance.
- Water proofing, Sealing & Corrosion Resistance.

INDENE
- Transparency (Important for Adhesives
- Better Adhesiveness, Increases Tack
- Glutinosity (Helps maintain Viscosity)

STYRENE
- Heat Resistance (Better heat ageing)
- Sound Insulation, Softening Characteristics
- Increases Gas Impermeability.

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

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

<table>
<thead>
<tr>
<th>Characteristics</th>
<th>Appearance</th>
<th>Number of Colors</th>
<th>Softening Point</th>
<th>Viscosity</th>
<th>OH Value</th>
<th>Acid Number</th>
<th>Specific Gravity</th>
<th>Molecular Weight</th>
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<tbody>
<tr>
<td>UNIT</td>
<td></td>
<td></td>
<td>°C</td>
<td>mPa's 25°C</td>
<td>KOH mg/G</td>
<td>KOH mg/g</td>
<td>-</td>
<td>Mw</td>
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<tr>
<td>NITTO RESIN</td>
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<td>90</td>
<td>-</td>
<td>25</td>
<td>1.0Max.</td>
<td>1.11</td>
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<td>100</td>
<td>-</td>
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<td>1.14</td>
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<tr>
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<td>-</td>
<td>30</td>
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<td>2,000</td>
<td>70</td>
<td>1.5Max.</td>
<td>1.10</td>
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Grade | Main Applications
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G-90 | Rubber Compound, Rubber Products, Retread and New Tyre, Adhesive, Gum Compound, Friction Compound
H-100 | Paint (for Ballast Tank), Anti Corrosive 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 paper (Special Grade with Low Odor)
L-5 | Recycled /Retread Tyre, Wooden Sleeper (Corrosion Protection or Railways), Wood Coating
L-20 | Belt, Blanket, Retread and New Tyre, Rollers

• Gum Compound in Tire Re-treading • Abrasion Resistant Industrial Rubber Rollers • Paddy De-husking Rubber Rollers • Printing Rolls • Hoses • Improves Rubber Compound Bonding with Cords & Fabric - Applications - Coated Fabric - Friction Compound of Wrapping, Conveyer Belts, V- Belts, Air Springs • Tank Lining • Very useful in Rubber Bond Cork application (Stoppers/Sheets) • Molded/Extruded Rubber Components • Softener/Plasticizer in NBR/PVC Blend Compound, Useful in Bitumen modification - better Tack, Heat Ageing • In Rubber Anti Vibration Engine Mounts • Adhesives & Anti-Corrosion Coatings & Paints
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 ADVANTAGE 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 (of 700) against Petroleum Resin (of 2000):

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

C1 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.

Especially in NBR it has got great advantage to avoid the knitting problem which is very common in manufacture of O-Rings, Seals and Thicker Mouldings, Rice Roll, Industrial & Printing Roll Compounds, High Pressure Hose, Belting, etc.

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 Gel 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), Nitto 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 because 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.