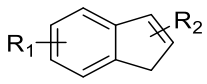
CLAIMS

1. A hydrocarbon polymer modifier comprising a cyclic component and an aromatic component, wherein

- the hydrocarbon polymer modifier has a glass transition temperature and number average molecular weight that is represented by $Tg \geq 95 - 2.2 * (\%H\ Ar)$ and $Tg \geq -53 + (0.265 * Mn)$, an aromatic proton content (%H Ar) of from 12 mole % to 19 mole %, and an Mn of from 300 g/mole to 450 g/mole, wherein Tg is the glass transition temperature expressed in °C as measured via Differential Scanning Calorimetry, %H Ar is the content of aromatic protons of the hydrocarbon polymer modifier as measured via NMR, Mn represents the number average molecular weight of the hydrocarbon polymer modifier as measured vua Gel Permeation Chromatography;
- the cyclic component is selected from the group of C_4, C_5 or C_6 cyclic olefins and mixtures thereof; and
- the aromatic component essentially consists of olefinic-aromatic compound of the Formula I



Formula I

wherein R_1 and R_2 represent, independently of one another, a hydrogen atom, an alkyl group, alkenyl group, a cycloalkyl group, an aryl group or an arylalkyl group.

2. The hydrocarbon polymer modifier of claim 1, wherein the hydrocarbon polymer modifier is further characterized by a Tg of from 70 °C to 95 °C.

3. The hydrocarbon polymer modifier of claim 1 or 2, wherein the hydrocarbon polymer modifier is further characterized by a Z-average molecular weight (M_z) of less than 1000 g/mole as measured by Gel Permeation Chromatography.

4. The hydrocarbon polymer modifier of any one of the preceding claims, wherein the cyclic component is cyclopentene, cyclopentadiene, dicyclopentadiene, cyclohexene, 1,3-cycylohexadiene, 1,4-cyclohexadiene, methylcyclopentadiene, and/or di(methylcyclopentadiene).

5. The hydrocarbon polymer modifier of any one of the preceding claims, wherein the hydrocarbon polymer modifier comprises the cyclic component in an amount between 10 wt. % to 90 wt. %.

6. The hydrocarbon polymer modifier of any one of the preceding claims, wherein the cyclic component is selected from the group of dicyclopentadiene, cyclopentadiene, and methylcyclopentadiene.

7. The hydrocarbon polymer modifier of claim 6, wherein the hydrocarbon polymer modifier comprises dicyclopentadiene, cyclopentadiene, and/or methylcyclopentadiene in an amount between 10 wt. % to 90 wt. %.

8. The hydrocarbon polymer modifier of any one of the preceding claims, wherein the hydrocarbon polymer modifier comprises the aromatic component in an amount between 20 wt. % to 75 wt. %.

9. The hydrocarbon polymer modifier of any one of the preceding claims, wherein the hydrocarbon polymer modifier has at least one and preferably all of the following additional features:

- a glass transition temperature (Tg) represented by $Tg \geq 100 - 2.2 * (H\ Ar)$,
- a glass transition temperature (Tg) represented by $Tg \geq -32 + (0.265 * Mn)$,
- a number average molecular weight (Mn) of between 350 and 420 g/mol, or
- a Tg of from 70 °C to 90 °C.

10. An adhesive composition comprising the hydrocarbon polymer modifier of any one of the preceding claims where the adhesive composition comprises the hydrocarbon polymer modifier in an amount between 0.1 wt. % to 99.5 wt. %.