Synthesis of Alkenylamber Acid`s Anhydrides and It`s Nitrogen Derivatives

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By interaction of malealdehyde with α -olefine the anhydride of alkenylamber acid have been synthesized.

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\text{CH}_2\text{(CH}_2)\text{n-CH}_3\text{CH}2\text{-CH=CH}_2 + \text{CH}_2\text{(CH}_2)\text{n-CH}2\text{-CH=CH}_2 \rightarrow \text{CH}_2\text{(CH}_2)\text{n-CH}_3\text{CH}2\text{-CH=CH}_2\text{CH}_2\text{C}2
\]

Where n-2,4,6.

The process is conducted in autoclave. The optimal conditions of the process: temperature is 200 – 220°C, reaction duration is 10 – 12 hours, correlation malealdehyde: α -olefines is 1:3-4. For prevent of α -olefine polymerization in reaction mixture the hydroquinone have been added in amount 0,3 – 0,5 mas.%. After atmosphere distillation of α -olefines excess condensate was distilled under vacuum. Yield of alkenylamber acid anhydride makes up 69-75 % from theoretical yield. The alkenylamber anhydrides of C6, C8, C10 acids have been synthesized similarly. The C6, C8, C10 anhydrides are liquids of light-yellow colour. The structure of alkenylamber acids anhydride have been confirmed by data of IR and PMR – spectroscopy. On base of synthesized anhydrides of alkenylamber acids and aliphatic alcohols C4 – C12 of normal and iso-structure, and also of cyclic and aromatic alcohols a series of esters have been received. On base of anhydrides and amines the nitrogen derivatives of alkenylamber acids have been synthesized. As an amine the aromatic (benzylamine, aniline, aminophenol) and aliphatic (diethylamine, polyethylenepolyamine) amines and also ammonia have been used. On base of amide of alkenylamber acids the Shiphoff alkalis have been received. For example:

The structure of synthesized nitrogen derivatives have been investigated by method of IR – spectroscopy. The physical – chemical and viscosity – temperature properties of synthesized compounds have been determined. The esters of alkenylamber acids have been offered as a base and component of synthetic lubricant oils.