

Base Oil Classification

According to the **American Petroleum Institute (API)**, base oils fall into five main groups. This breakdown is based on the refining method and the base oil's properties in terms of, among other things, viscosity and the proportion of saturates and sulfur content.

Group I

The least refined type which produced by Solvent Refining. It usually consists of conventional petroleum base oils.

API defines group I as "base stocks contain less than 90 percent saturates and/or greater than 0.03 percent sulfur and have a viscosity index greater than or equal to 80 and less than 120".

Group II

Better grade of petroleum base oil, which may be partially produced by Hydrocracking. All impurities will be removed from the oil leading to clearer color.

API defines group II as "base stocks contain greater than or equal to 90 percent saturates and less than or equal to 0.03 percent sulfur and have a viscosity index greater than or equal to 80 and less than 120".

Group III

The best grade of petroleum base oil, since they are fully produced by Hydrocracking, which make these oils purer.

API defines group III as "base stocks contain greater than or equal to 90 percent saturates and less than or equal to 0.03 percent sulfur and have a viscosity index greater than or equal to 120".

This group may be described as Synthetic Technology oils or Hydro-Cracked Synthetic oil. However, some oil companies may *call* their products under this group *synthetic* oil.

Group IV

Consists of synthetic oils made of Poly-alpha-olefins PAO.

Poly-alpha-olefins PAO oils are much more stable in extreme temperatures, which make much more suitable for use in very cold weather (as found in northern Europe) as well as very hot weather (as in Middle East).

Group V

Any type of base oil other than mentioned in the previously defined groups.

They include, among others, naphthenic oils and esters