

Alkylate

Alkylate petrol has been used in many years as an environmentally and healthy adjusted fuel for forest workers and other.

WHY?







In various ways we affect our surroundings and our environment. If the opportunity exists to act and reduce environmental impact while improving health, should we then not do our best to do so? To help you understand more about Alkylate, we would like to explain as simple as possible,

what is Alkylate.

CRUDE OIL

Crude oil is one of many sources whose stored energy has its origin in the sun. By hundreds of million years of development, the organic material derived from animal and plant parts stored in the rocks on top of them. High pressure and heat are then transformed the material into hydrocarbons. It is because of this process, such as oil, coal and natural gas are called fossil fuels (fossil dug up does). Most researchers believe that petroleum formed at a rate that is less than 1 percent of the extraction rate.



HYDROCARBONS - Building blocks in organic chemistry

Hydrocarbons are organic compounds that are composed solely of carbon and hydrogen. Hydrocarbons are insoluble in water and lighter than water.

Virtually all the hydrocarbon molecules in the oil can be attributed to the Divisions **alkanes** (**paraffins**), **alkenes** (**olefins**) **and arenes** (**aromatics**).

We thought of going through these different hydrocarbons as simple as possible so we can understand all the benefits that it brings to use Alkylate petrol.

HYDROCARBON

A carbon atom and four hydrogen atoms is the simplest of the hydrocarbons, methane, natural gas, which constitutes the main ingredient. Next compound in the series, ethane, C2H6 (C = carbon, H = Hydrogen), containing two carbon atoms, each of which is associated with three hydrogen atoms.

Carbon atoms can bind to each other, thus forming long chains and new topics. If carbon atoms are bound together by more than one bond it is an <u>unsaturated</u> compound. Remember this

HYDROGEN

Hydrogen is the simplest, easiest, most common and earliest formed element in the universe after the Big Bang. At standard pressure and temperature hydrogen is one diatomic, smell, color and tasteless but highly flammable gas.

A hydrogen atom consists of a single negatively charged electron, which is around a positively charged proton. Most of the solar mass (≈ 73.46%) consists of hydrogen.

Melting point Boiling Density Vapor pressure

-259 C point -253 C 0.0899 kg/m3 209 kPa



Carbon

Carbon is the fourth most common element in the universe. Only hydrogen, helium and oxygen are more common. As pure materials, there are four different forms: graphite and diamond are the most common. Life we know is based on the element carbon. For this reason it is called all the molecules, where the carbon and hydrogen atoms are included, the organic. Coal can take many forms and is one of the strongest building blocks of nature.

Melting point Boiling point Density Vapor pressure

3550 C (graphite).
4 827 C
2267 kg/m3
0

3600 C (diamond)



Metan Series - Alkanes/Alkylate

What is the difference between the different divisions, **alkanes**, **alkenes** and **arenes** (**aromatics**). How can Alkylate petrol be so good? Metan series consists of alkanes like alkylate. Some alkanes are gases, methane (CH4), the simplest hydrocarbon, ethane (C2H6), propane (C3H8), butane (C4H10) and pentane. Unions in the metan-series is "**saturated**", ie. all carbon atoms have four bonds to four other atoms. Methane, Ethane, Propane, Butane, Pentane, Octane etc.

Boiling point increases with increasing molecular mass of alkanes. Alkanes with more than 15 carbon atoms are usually solids. LPG is a mixture of gases consisting of propane or butane. LPG is stored in gas cylinders. Lamp oil (paraffin) with 10-13 C atoms is considerably less volatile, and of course heavier. In other words, is fine lamp oil and candles to the same family as alkylate. **Alkylate is produced from about 10 of the least harmful hydrocarbons from crude oil.**

BESTFUEL



Alkenes - unsaturated hydrocarbons – Olefins

The simplest unsaturated hydrocarbon is ethylene (C2H4). An infinite number of variations in structure are possible. Unsaturated hydrocarbons with one double bond are called olefins. All unsaturated hydrocarbons and olefins are particularly reactive and can therefore be no greater difficulty changing the structure pg. of two weak bonds in the molecule. The use of reason as a starting material for many chemical processes such as industrial processes, plastics, etc. Alkylate has very low content of Alkenes and therefore does not change the structure in the same way as commercial fuel. Also in the burning procedure Olefins are transforming to sot (a reaction with oxygen). Alkylate is very storage stable and gives also a cleaner burning thanks to the lack of Alkenes.

You can find Alkenes in gasoline with up to 13%. Alkenes can be much more effective than other hydrocarbons contribute to elevated levels of ozone and other vegetation damaged threads. The man turned alkenes to genotoxic epoxides which poses risks for mutations and cancer. Olefins are also harmful to aquatic animals.





Aromatics (Arenes).

Is as it sounds, aromas and odors affect. Although the structure of the formula suggests that benzene should behave as an unsaturated hydrocarbon, it turns out to be very stable thanks to the ring-shaped molecular structure.

Aromatics affects the nervous system when inhaled, gives nausea and fatigue and affects the eyes and skin in an annoying way. Alkylate contains virtually no aromatics, and use of alkylate in 2-cycle engines have been shown to decrease the most unwanted emissions, PAHs (polyaromatic hydrocarbons), with up to 80 -90%. Many PAHs are carcinogenic, others are acute-toxic. The difference between Alkylate petrol and conventional petrol can be felt directly when filling up, at combustion or when handling the fuel, mainly due to the difference in aromatics.

- Aromatics are also toxic to aquatic organisms and humans.
- Some examples are Aromatics: Benzene, Toluene and Xylene.

BESTFUEL

Commercial petrol

- About 500 different hydrocarbons
- More than 50% is harmful
- About 35% aromatic hydrocarbons
- Storage stable for less than 12 month
- Affect nervous system, dizziness and nausea

Alkylate petrol

- About 10 of the least harmful hydrocarbons from crude oil (Alkanes/parrafines).
- Less than 1,0 % aromatic hydrocarbons.
- Less than 1,0% Olefines.
- Extremely low Sulphur content.
- Storage stable for more than 2 years.
- Reduction of PAHs with up to 90% in

Bad odour and irritant.

Contains Benzen.



a two-stroke engine.

- Lower vapor pressure, which reduces exposure to gasoline fumes
- Less irritating odour.





PETROL CONTAINS DIFFERENT HYDROCARBON COMPOUNDS

Hydrocarbons contain Alkanes, Arenes with Benzene and Alkenes. The differences in hydrocarbon composition between regular petrol and Alkylate petrol is shown in the table below. Alkanes are the least toxic of all hydrocarbons found in petrol today, and to sum up it can be said that "Alkylate petrol" contains the least toxic substances while still having a good operational function.

Hydrocarbon composition in Petrol and Best Fuel Alkylate.	% V/V		Comersial petrol 95	Alkylate	
Alkanes (Parrafines) Are the least toxic of all hydrocarbons present in petrol today.	Parrafins	Alkanes	30-60	99	
Aromatics Are toxic for aquatic organisms and humans.		Aromatic	35	<1,0	
Benzene is classified as toxic As it is a proven cause of leukaemia. Blood canser.	Benzene	Aromatic	<1	<0,1	
Alkenes (olefines) in humans are transformed to genotoxic epoxides with risk of causing mutations and cancer. Olefins are damaging to aquatic animals.		Alkenes	6-13	<1,0	
Ethanol and other higher alcohols		Alcohol	5	0-5	



OFFICIAL SUPPLIER U.I.M F1H2O









FULLY SYNTHETIC OIL BF 2Tr

BF 2-Tr is a Fully synthetic, Solvent free partially biodegradable and non toxic 2-stroke oil.

BF 2-Tr has been developed for all ground based 2-stroke engines. It gives the best possible lubrication of hard working 2-stroke engines and keep the engine clean from combustion, residues and deposits.

BF 2-Tr is of low smoking type, is easy fluid and has extremely good pump and mixing abilities at low temperatures. This oil is also recommend for use in engines that work in very low temperatures, such as snowmobiles, where the users also appreciate the low smoke function.

BF 2-Tr is pre-mixed with a small part high quality Paraffines (Alkanes) to get the best blending performance with our Alkylate.



INDUSTRY STANDARDS AND ENGINE TESTS

BEST FUEL FULLY SYNTHETIC 2-STROKE FORMULATION

SOLVENT FREE PARTIALLY BIODEGRADABLE

Shows better results than the industry standard as below

- Fully Synthetic Industry Standards
- ISO-L-EGD / JASO FD
- API TC Shows good correlation with field performace
- Shainsaw engine test
- Husqvarna 346 and 372
- Rotax 253

Two-Stroke Engine



Four-Stroke Engine



Alkylate petrol. For chainsaws, hedge trimmers mopeds and other land-based 2-Stroke engines.

Alkylate petrol. For lawnmowers, boats, 4 stroke mopeds and other four

stroke engines.