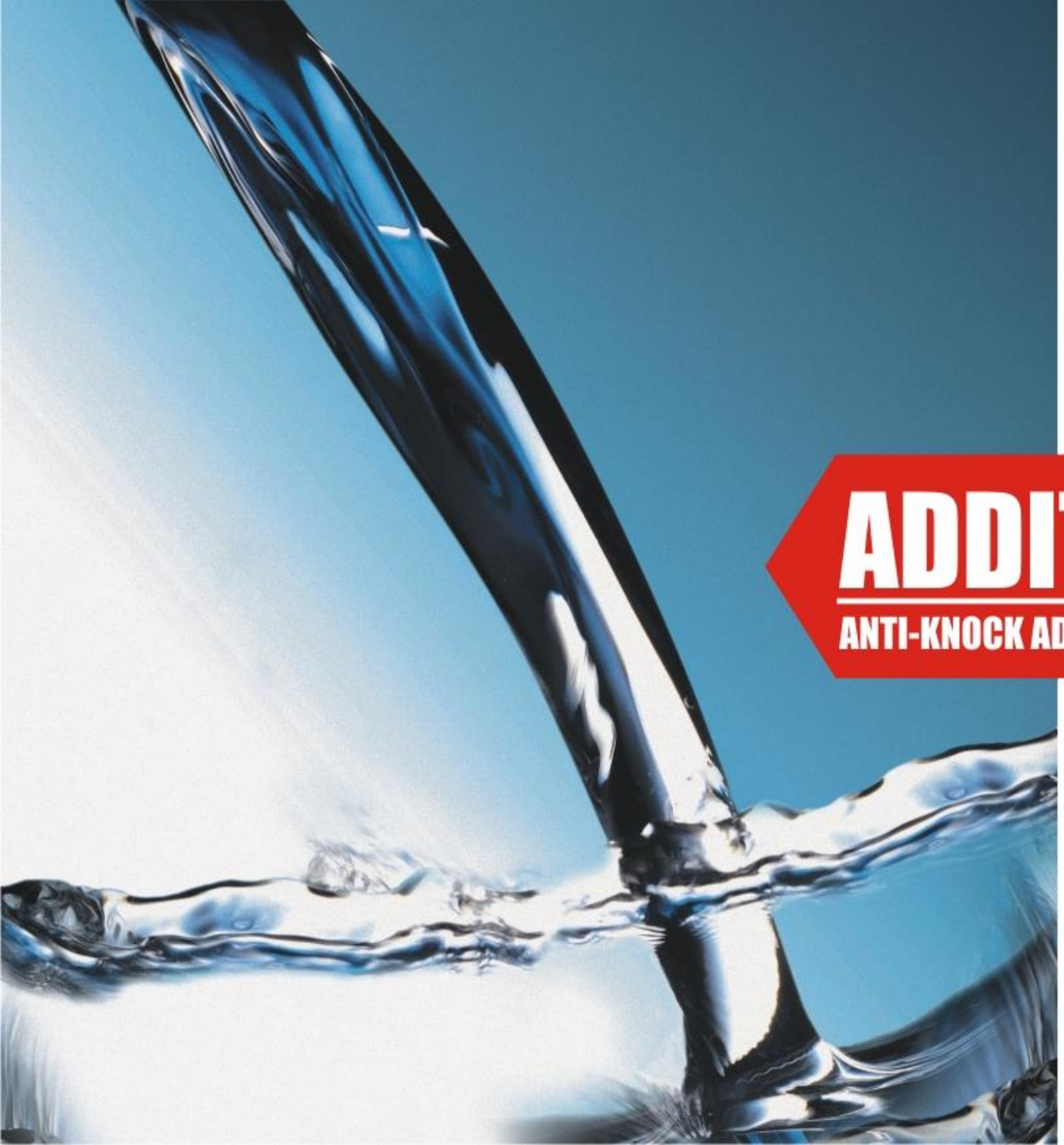

KRATA®

ADDITIVES ADA

ANTI-KNOCK ADDITIVES FOR FUEL AND PETROL

ADDITIVES ADA
ANTI-KNOCK ADDITIVES FOR FUEL AND PETROL

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About the company

Opened Join Stock Company «Pigment» - one of leading enterprises of the chemical industry, a part of industrial group «KRATA». More half a century the enterprise delivers on Russian and the foreign markets over 300 names of chemical production for various industries.

The enterprise is located on the cross of rail-ways and highways road, connecting it with Central part of Russia, Volga region, South and West of the country.

Infrastructure of enterprise «Pigment» includes:

- Owned land territory - 144 hectares;
- Heat station;
- Over 400 objects of real estate (industrial, storage and office destination).

ADDITIVES ADA
ANTI-KNOCK ADDITIVES FOR FUEL AND PETROL

Additives ADA

The first anti-knocking additives ADA based on Monomethylaniline were developed in 1993 for replacement of tetraethyl lead in petrol compositions together with Russian Petroleum Refining Research Institute.

Later more new additives were developed to meet the growing gasoline, engine and ecological requirements.

The additives ADA allow production all car petrol spectrum:

RON-76, RON-92, RON-95, RON-98.

ADDITIVES ADA
ANTI-KNOCK ADDITIVES FOR FUEL AND PETROL

The use of the additives ADA in petrol production allows:

- Increase of the octane number at little loading rate;
- The produced petrol is of required quality taking into account the absolute compatibility of the ADA additive with each other;
- Improve ecological characteristics of fuel obtained, reduce content of aromatic hydrocarbons and toxic exhaust emissions;
- Increase stability of petrol quality during transportation and storage owing to decrease of tar forming;

ADDITIVES ADA
ANTI-KNOCK ADDITIVES FOR FUEL AND PETROL

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The use of the additives ADA in petrol manufacture allows:

- Reduce expenses on technical service of car. The petrol with these additives provides anticorrosive protection and cleanness of fuel tank surfaces and fuel feeding system of the car, prevents icing of carburetor chambers in winter period;
- Reduce the intensity of deposit forming in combustion chamber;
- Reduce expenses on anticorrosive service of petrol storage tanks;
- Avoid capital costs on equipment for high octane petrol production.

ADDITIVES ADA
ANTI-KNOCK ADDITIVES FOR FUEL AND PETROL

Advantages of additives ADA

- All anti-knock and boosting additives for gasoline under ADA trade mark contain antioxidant, which prevents tar and deposits formation in additives and gasoline.

- All additives compatible with other types of similar agents and mix perfectly with benzenes, spirits, organic solvents.

- ADA additives passed qualification tests and certified, that gasoline

with our additives comply the European requirements “Euro – 4-5”.

ADDITIVES ADA
ANTI-KNOCK ADDITIVES FOR FUEL AND PETROL

Advantages of additives ADA

- The economical efficiency provides sufficient decrease of transportation costs and expenditures for production of 1 ton of gasoline from equal volume.

- For example: 60 ton tank comparison -

MTBE 60 tons	**introduction RON boosting**	**12% 4, 5 points**	**Enough for treatment of 500 tons of gasoline**
ADA 60 tons	**introduction RON boosting**	**1, 5% 6 points**	**Enough for treatment of 4000 tons of gasoline**

Thus, 60 tons of MTBE is enough for only 500 tons of gasoline with 4,5 RON boosting points, whereas ADA is sufficient for 4000 tons of gasoline and 6 point RON boosting.

- The ADA-N (nano-tech) 60 tons amount may boost RON on 10 points for 2000 tons of gasoline!

ADDITIVES ADA
ANTI-KNOCK ADDITIVES FOR FUEL AND PETROL

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Advantages of ADA additives

- Boosting effect of ADA additives is more powerful then that of MTBE.
- All additives are compatible with MTBE in different dosage and improve its effect.
- New line of ADA additives (ADA-Super, ADA-Krata, ADANor) doesn’t contain metal and other metal inclusions, and this is ecology friendly factor.
- ADA additives don’t create toxic compounds in air or waste water. Their vapor ability is not high due to high boiling point - 195 C.

ADDITIVES ADA
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Advantages of additives ADA

- Infiltration of ADA additives in fresh water should be avoided. It is visually easy to control, because the additives don't mix with water and create a detectable oily film on the surface of the water. It helps to control pollution.

- **Refining process doesn't allow to eliminate all toxic components from emission. It could be done only during fuel combustion in engine.** ***That requires the use of special additive, which serves as catalyst for full burning of toxic components in tail emissions.***

- The following are the advantages for auto engine;
  - Practically zero level of CO and CH components in emission fumes due full burning of fuel.
  - Decrease of fuel consumption, engine power boosting.
  - No tar or deposits in the engine. Clean engine due to burning of deposits in combustion chambers and on plugs. New deposits don't form.

ADDITIVES ADA
ANTI-KNOCK ADDITIVES FOR FUEL AND PETROL

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Advantages of additives ADA

Calculation of efficiency of transportation

(ADA KRATA 60 mt and MTBE 60 mt)

ADA-KRATA	MTBE	Effect
Transportation of 60 mt for 300 km costs 2002.72 $.	Transportation of 60 mt for 300 km costs 2002.72 $.	If they are shipped in own tanks, the transportation costs are the same.
4000 mt of RON-95 (based on RON-92) come from 60mt of ADA-KRATA	600 mt of RON-95 come from 60mt of MTBE (based on RON-92)	It is 6,6 tanks more of MTBE
Total costs for transportation of the additive for production of 4000 mt of gasoline are 2002.72 $.	Total costs for transportation of the additive for production of 4000 mt of gasoline are: 15220.69 $.	Economies in transportation of ADA-KRATA are 11215.25 $.
Transportation costs for production of 1mt of gasoline are 0.43 $.	Transportation costs for production of 1mt of gasoline are 3.33 $.	When MTBE is used, the rise in the cost of 1 mt of gasoline is 2.80 $.

ADDITIVES ADA
ANTI-KNOCK ADDITIVES FOR FUEL AND PETROL

Multifunctional additive for motor petrol ADA-KRATA

- The additive ADA-KRATA is intended to improving operating and ecological parameters of motor petrol by means of increasing their anti-knock properties providing simultaneously necessary washing and anticorrosive efficiency.

- The ADA-KRATA contains additionally multifunctional component having washing and anticorrosive properties. The ADA-KRATA is intended for using in petrol having improved operating and ecological characteristics provide running motor vehicle of Euro-4 class and above.

- According to State Standard the additive ADA-KRATA belongs to 4 danger class (low dangerous substance).

ADDITIVES ADA
ANTI-KNOCK ADDITIVES FOR FUEL AND PETROL

KRATA®

Multifunctional additive for motor petrol ADA-KRATA

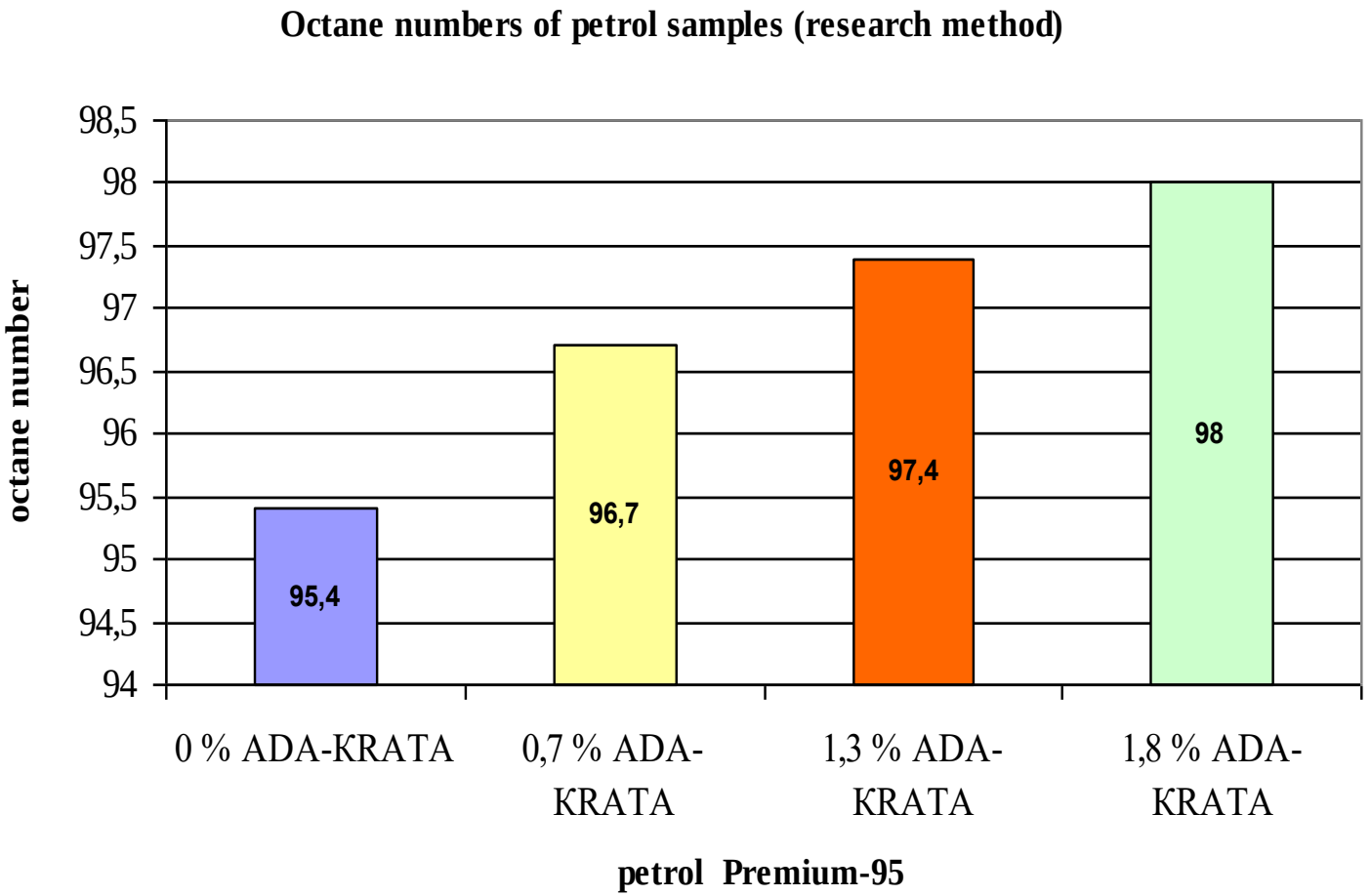
Specifications

Name of parameter	**Value**	
	Grade A	**Grade B**
Appearance	Oily transparent liquid foreign bodies free	
N-methylaniline content by wt.,%, min.	73	72
Solvent content by wt., %, max.	27	26,5
Density at 15°C, kg/m^3, min.	930	
Refraction index at 20°C, n_D^{20}	1,5255-1,5275	
Optical density, D, max.	0,1	
Water content by wt., %, max.	0,15	
Sulfur content, ppm, max.	10	
Increase of the octane number of mixture containing isooctane and n-heptane in ratio 70:30 by volume if 1,8 % wt. additive ADA-KRATA(1,3% wt. N-methylaniline) is loaded, units, min.	5,5	

ADDITIVES ADA
ANTI-KNOCK ADDITIVES FOR FUEL AND PETROL

KRATA®

Multifunctional additive to motor petrol ADA-KRATA



ADDITIVES ADA
ANTI-KNOCK ADDITIVES FOR FUEL AND PETROL

KRATA®

ADA-Super

- ADA-Super lets improve main operation parameters of automotive fuels and get admission for manufacture of petrol according to standards Euro-3 and Euro-4.

- The additive ADA-Super may be used for mixing with MTBE in order to reduce the percentage of ether loading and stabilization of petrol that result in noticeable reduction of expenses for petrol manufacture owing to synergistic effect with MTBE.

ADDITIVES ADA
ANTI-KNOCK ADDITIVES FOR FUEL AND PETROL

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ADA-Super Advantages

- No effect on change of petrol color; ADA-Super is a liquid colorless to light yellow;
- Main substance content in ADA-Super 98,5 %;
- Low content of foreign bodies providing high purity grade of product;
- High stability to oxidation during storage;
- Increase anti-oxidative properties of petrol;
- Reduction of tar forming during storage.

ADDITIVES ADA
ANTI-KNOCK ADDITIVES FOR FUEL AND PETROL

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ADA-Super Specifications

Name of parameters	Value
Appearance	Oily transparent liquid foreign bodies free
Monomethylaniline content by wt.,%, min.	98,5
Density at 15°C, kg/m^3, min.	975
Refraction index at 20°C	1,5695-1,5715
Optical density D, max.	0,1
Increase of the octane number of mixture containing isooctane and n-heptane in ratio 70:30 by volume if 1,5 % wt. additive ADA-Super is loaded, units, min.	6

ADDITIVES ADA
ANTI-KNOCK ADDITIVES FOR FUEL AND PETROL

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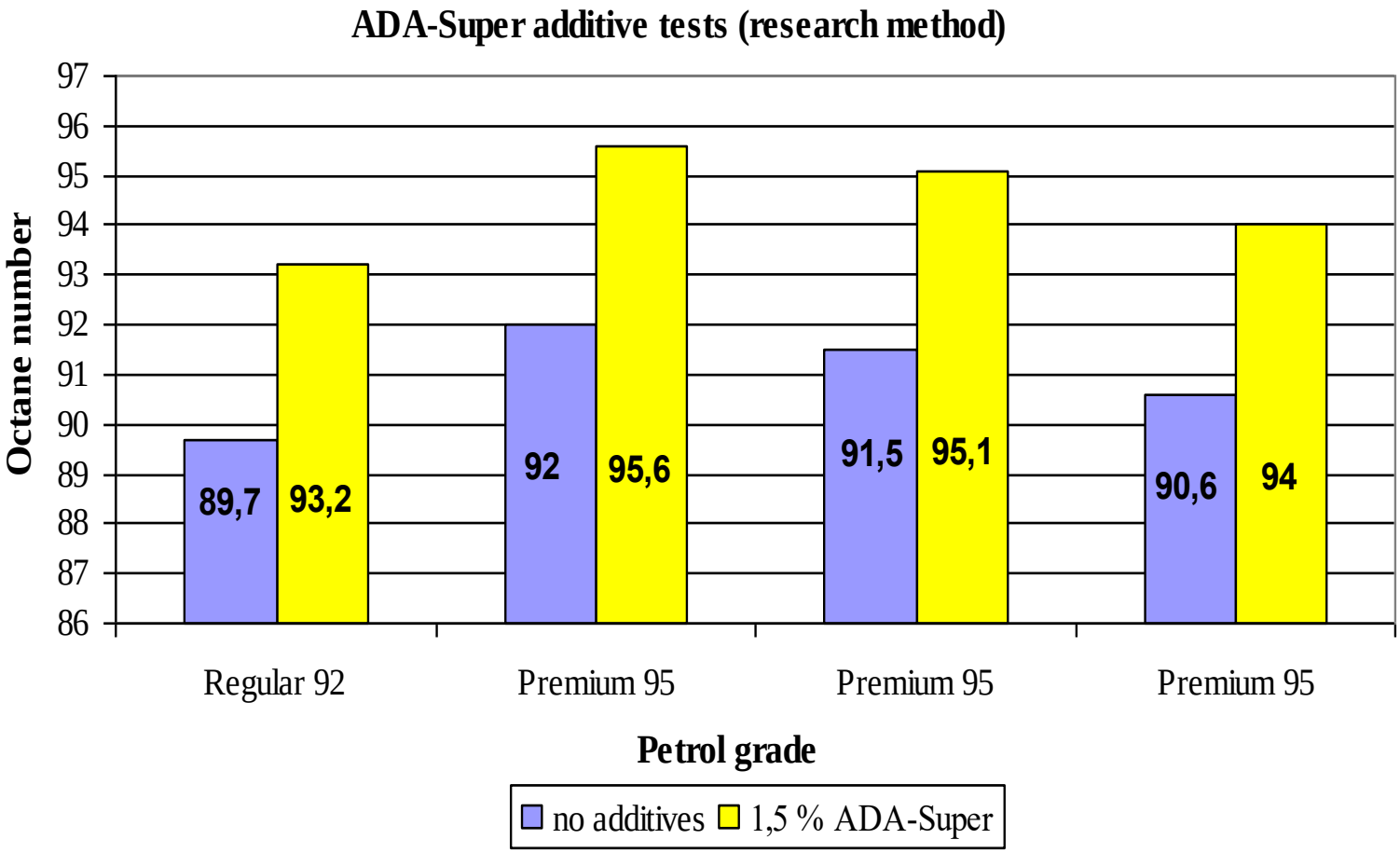
ADA-Super



ADDITIVES ADA
ANTI-KNOCK ADDITIVES FOR FUEL AND PETROL

Anti-knock additive ADA

- The anti-knock additive ADA based on aromatic amines is applied to increase knock resistance of petrol and octane number of petrol fractions.
- Ingredients: monomethylaniline stabilized with antioxidant.
- The additive ADA may be used for mixing with MTBE to reduce percentage of ether input and stabilization of petrol that results in cost cuttings in petrol manufacture.

ADDITIVES ADA
ANTI-KNOCK ADDITIVES FOR FUEL AND PETROL

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Anti-knock additive ADA Advantages

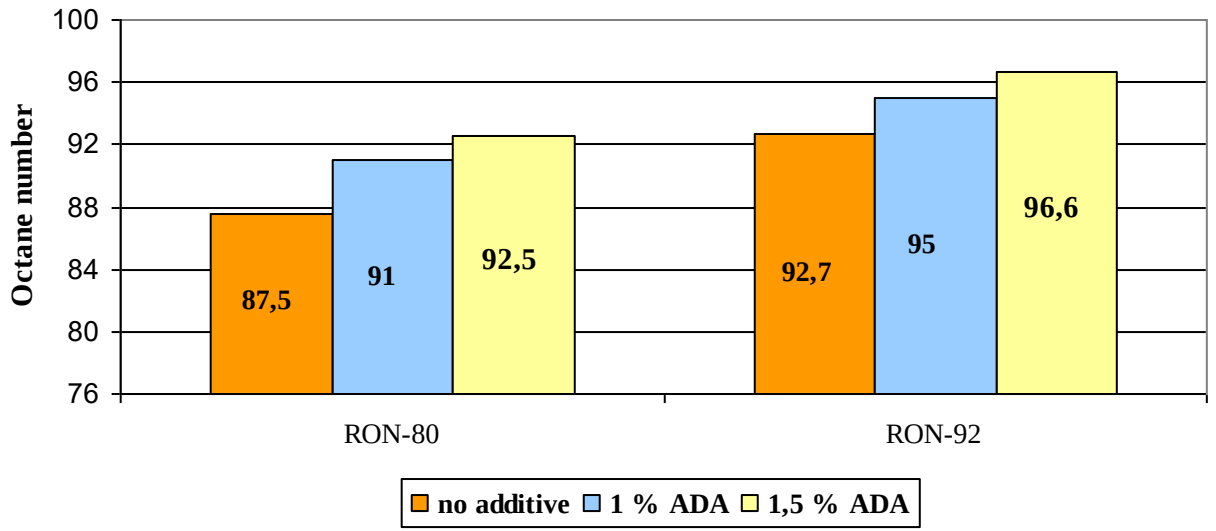
- The possibility of re-formulation of petrol RON-76 (RON-80) to petrol RON-92 ; RON-92 to RON-95 based on use of this additive;
- Noticeably minor toxicity in comparison with tetraethyl lead and manganese additives;
- The absolute compatibility with other additives;
- The improved formulas of exhaust gases

ADDITIVES ADA
ANTI-KNOCK ADDITIVES FOR FUEL AND PETROL

Anti-knock additive ADA
Specifications

Name of parameters	Value
Appearance	Oily transparent liquid of color from yellow to light brown
Monomethylaniline content by wt.,%, min.	98,0
Density at 15ºC, kg/m^3, min.	973
The octane number of mixture of isooctane and n-heptane in ratio 70:30 by volume if 1,5 % wt. additive ADA is to increase in units, min.	6

The diagram of octane number increase with additive ADA



ADDITIVES ADA
ANTI-KNOCK ADDITIVES FOR FUEL AND PETROL

Anti-knock additive ADA

- The anti-knock additive ADA may be used on petroleum refinery plants, big and little petroleum storage depots to load in motor-car petrol for improving their operating and ecological properties including petrol anti-knock resistance and reduction of content toxic ingredients in waste gases. The additive is multifunctional and has anti-knock, anti-icing and washing properties

- Low toxicity, reduces danger of toxic effect on a person working with it and poses practically no damage on environment

- Reduction of waste gases toxicity of motor-cars: hydrocarbons content by 8%, carbon monoxide by 30%

ADDITIVES ADA
ANTI-KNOCK ADDITIVES FOR FUEL AND PETROL

KRATA®

Ash-free high-octane additive BVD

- The additive BVD is intended for using in car petrol to improve their operating and ecological properties
- The composition of the additive BVD contains aromatic amines and oxygen-containing compounds as anti-knock ingredients and also stabilizers, washing and other additives
- Low toxicity, reduces danger of toxic effect on a person working with it and poses practically no damage on environment
- Reduction of waste gases toxicity of motor-cars: hydrocarbons content by 8%, carbon monoxide by 30%

ADDITIVES ADA
ANTI-KNOCK ADDITIVES FOR FUEL AND PETROL

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Ash-free high-octane additive BVD Advantages

- Reduction of expenses on car maintenance
- Reduction of petrol consumption by 5 – 7% per 100 km mileage.
- Increase stability of petrol quality during transporting and storage
- Reduction of caking intensity in combustion chamber and cylinder bottom in 15 – 20%
- Increase anti-oxidative properties of petrol and reduction of tar forming during storage.

ADDITIVES ADA
ANTI-KNOCK ADDITIVES FOR FUEL AND PETROL

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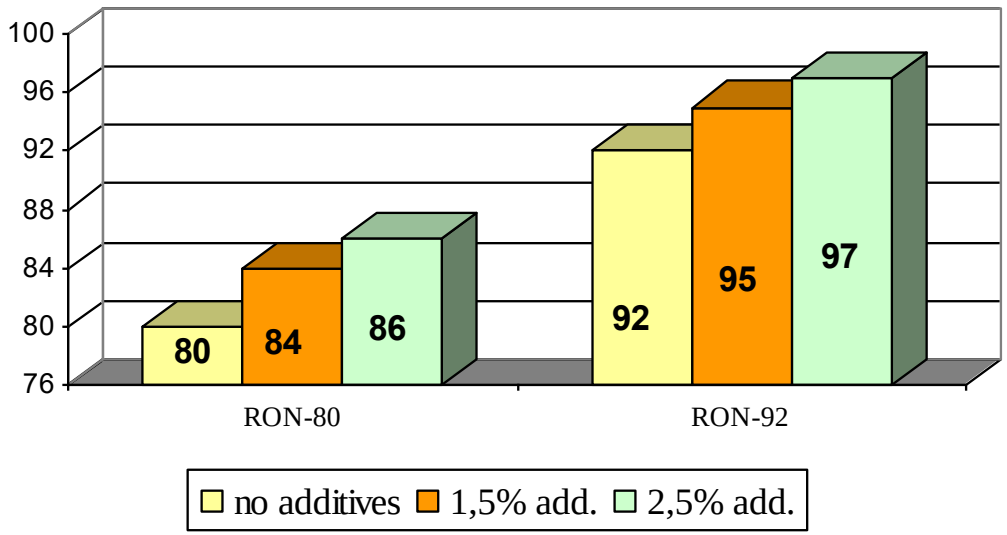
Ash-free high-octane additive BVD Specifications

Name of parameters	Value
Appearance	Yellow liquid foreign bodies free
Monomethylaniline content by wt.,%, min.	65,0 - 70,0
Density at 20°C, kg/m^3, min.	790 - 920
Content of oxygen-containing compounds by wt., %, max.	30,0
Increase of the octane number of mixture containing isooctane and n-heptane in ratio 70:30 by volume if 2,5 % wt. additive ADA-M is loaded, units, min.	6

The diagram of octane number increase with additive BVD



KRATA®

Our Company is always open for mutually beneficial cooperation

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