



**POSSIBILITIES AND SPHERES OF
PRODUCT APPLICATION
MAGICFUEL**

ADDITIVES FOR FUEL PRODUCTION

Additives for the production of fuels with increased competitive operational, environmental characteristics (diesel fuels, gasoline, fuel oil)

There are no regulatory and legal restrictions for the large-scale application of our products, which is confirmed by the results of bench, operational and laboratory tests in the Republic of Belarus, RF, Kazakhstan, Ukraine and EU countries.



FUEL SEGMENT - PROPOSED TECHNOLOGY RANGE

- ☐ Antioxidants and metal deactivators.
- ☐ Corrosion inhibitors.
- ☐ Dyes and markers.
- ☐ Additives that improve lubricity.
- ☐ Additives that increase the cetane number.
- ☐ Stabilizers for petroleum fuels.
- ☐ Detergents for gasoline.
- ☐ Detergents for diesel fuel.
- ☐ Additives improving cold flow.
- ☐ Additives that improve the combustion of diesel / boiler fuel, coal.
- ☐ Additives to reduce hydraulic losses.



FUEL SEGMENT - PROPOSED TECHNOLOGY RANGE

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- ☐ Additives for light fuel oil.
- ☐ Additives that remove static electricity.
- ☐ Aviation fuel additives.
- ☐ Fuel oil additives.
- ☐ Marine fuel additives.
- ☐ Additives that improve the combustion of heavy fuel oil.
- ☐ Additives that restore the operation of the diesel particulate filter.
- ☐ Anti-knock additives for gasoline.
- ☐ Additives that reduce increased valve seat wear.
- ☐ Bioethanol additives - biocides, stabilizers, cold flow improvement, antioxidants.
- ☐ Additive bags for coal, coke, heavy fuels.
- ☐ Carbo-antifreeze.



ADDITIVES FOR MOTOR GASOLINE

- ❑ **ALP-B95** is a multifunctional octane-enhancing gasoline additive designed to improve fuel economy and improve engine and fuel system cleaning.
- ❑ The recommended dosage of the ALP-B95 additive when used is 260 - 600 mg / l, depending on the quality of the fuel, as well as the promising performance indicators determined for commercial fuel with high-octane components.



WHEN THE RECOMMENDED DOSE IS FOLLOWED, BENEFITS PROVIDES A NUMBER OF BENEFITS

- ☐ Improving the cleanliness of the engine fuel system.
- ☐ Reduced intake valve sludge formation.
- ☐ Improving the lubricity of gasoline due to a friction modifier.
- ☐ Reducing emissions into the atmosphere.
- ☐ Increasing of capacity.
- ☐ Increase of fuel economy.
- ☐ Protection against sticking of the foot of the inlet valve and its cleaning from carbon deposits.
- ☐ Reduction of carbon deposits in the combustion chamber.
- ☐ Giving anti-sludge properties to the lubricating oil.
- ☐ Increase of the protection against corrosion and water-fuel emulsions.
- ☐ Full compatibility with materials of engine parts and fuel system.



IMPROVING TECHNICAL ENGINE PERFORMANCE WHEN TESTING FUELS WITH AN ALP-B95 ADDITIVE

Test fuel	Fuel consumption, l / 100 km, city	Fuel consumption, l / 100 km, highway	Mean	Power, kWt	Acceleration time 80-120 km / h, s	Acceleration time 50-120 km / h, s
Base fuel	8.01	7.48	7.75	65.4	9.84	16,44
+600 mg / l Additive ALP-B95	7.83	7.32	7.58	66.2	9.61	15,96

- ❑ Increase of fuel economy by 2.19%;
- ❑ Increase in vehicle power by 1.22%;
- ❑ Increasing the acceleration speed of the car in the speed range:
 - ❑ 80-120 km / h by 2.33%;
 - ❑ 50-120 km / h by 2.92%.



ADDITIVE ALP-B95 REMOVAL OF CARBON DEPOSITS ON THE INTAKE VALVE

Cleaning performance results demonstrated when tested on an industry standard Mercedes M102E engine for 60 hours.

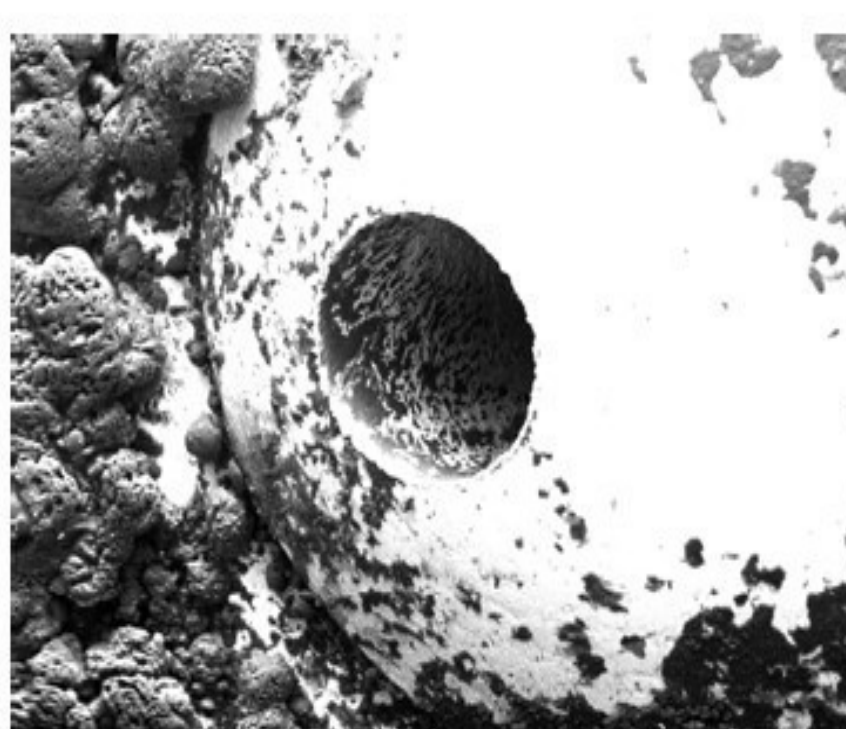
Stage trials	Fuel	Dosage of the ALP B95 additive, mg / l	Average carbon mass of the inlet valve, mg / valve	Cleaning Percent ,%
Contaminated engine	European petrol	No	370,5	–
Cleaning		600	103,2	72



DIRECT PETROL INJECTION TECHNOLOGY



DIRTY NOZZLE



**NOZZLE AFTER USING THE ALP-95
ADDITIVE**



FRICION AND WEAR

High Frequency Reciprocating Rig (Modified HFRR) Test Results for Automotive Gasoline Lubricity

A modified HFRR test using a test bench designed for volatile liquids was carried out to determine the effect on wear marks when using ALP-B95 additives. A summary of the performance results in gasoline is shown below.

Initial data	Result
Base gasoline	450 MKM
Base gasoline + 600 mg / l additive ALP-B95	259 MKM
% of reduction in friction	42%



DIESEL FUEL ADDITIVES

Additives of the TPW-D series with multifunctional properties

Additives TPW-DW series for improving low temperature properties



MAIN PARAMETERS OF THE TPW-D FORMULA

- ☐ Combustion catalyst
- ☐ Lubricity
- ☐ Washing effect
- ☐ Anti-foam performance
- ☐ Corrosion protection
- ☐ Improved moisture separation
- ☐ Increased stability of fuel in mineral derivatives and biodiesel mixture
- ☐ Electrostatic safety
- ☐ Marker
- ☐ Increase in cetane number
- ☐ Reduction of harmful emissions into the atmosphere



TPW-D

TPW-D is a lubricating additive for diesel fuels with multifunctional properties: detergent, anti-smoke, catalytic, antioxidant, anticorrosive, stabilizing, defoaming, moisture-repelling, antistatic properties, the additive may contain a marker.

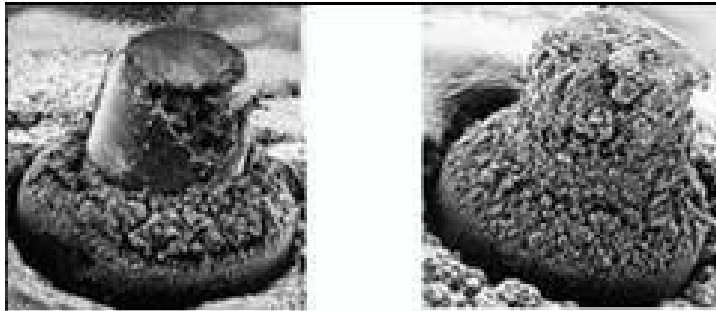
Diesel fuels with TPW-D additive have additional competitive performance advantages over premium (branded) fuels in large urban areas and environmentally sensitive areas, as well as to improve the performance of high-speed engines, such as:

- Effective detergent properties: reducing the inhibition of the fuel flow at the nozzle when the needle is raised by 0.10 mm to 68% (Method CEC (PE-023) TBA)
- improvement of the ecological properties of engines, reduction of smoke, CO, CH, NOx;
- increasing the output power of power devices. reduced fuel consumption;
- increases the reliability and service life of the engine, its parts, components, assemblies before current and major repairs, reduces the number of injector replacements by 14% and high pressure pumps by 20%.
- increases the specific electrical conductivity of the fuel;
- increases fuel stability, shelf life up to 50%, resistance to fuel oxidation, including biocidal, antioxidant action;
- improves protection against corrosion (ASTM D 665A, ASTM D 130).



DIESEL + TPW-D

Improved engine cleanliness



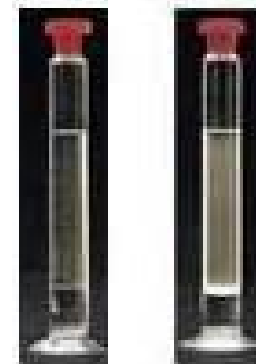
Improved engine protection



Excellent antifoam performance

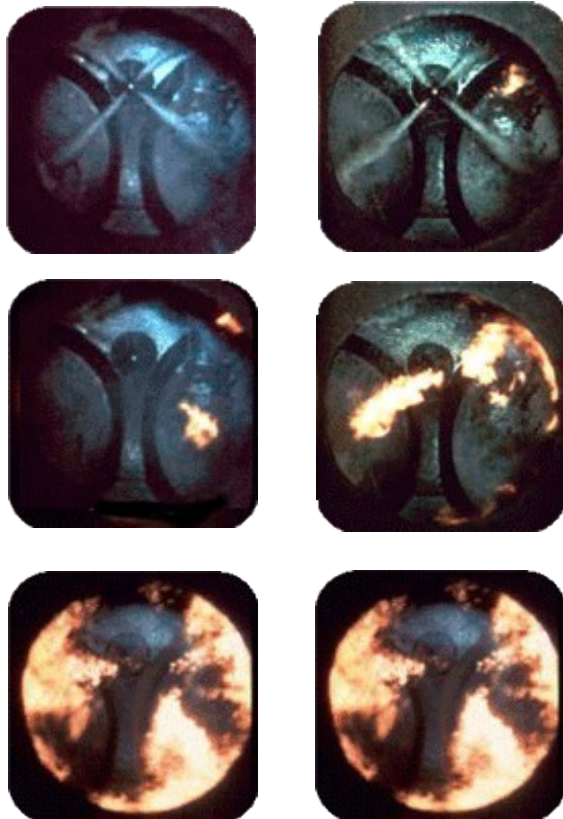


Moisture protection



DIESEL + TPW-D

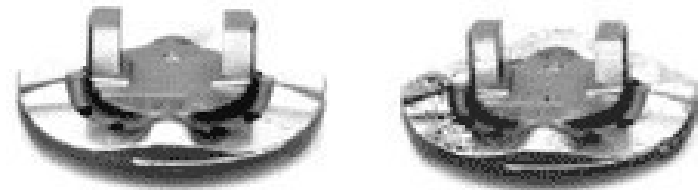
Improved combustion



Excellent cleanliness and wear prevention



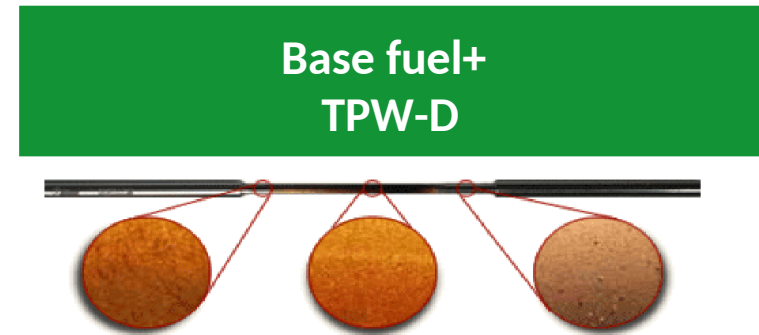
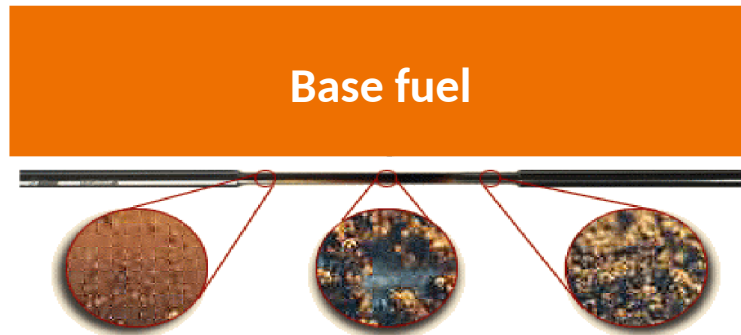
Reduced corrosion



DIESEL + TPW-D

The TPW-D protects the feed and injection system from contamination that can reduce power and increase pollutant emissions.

The excellent detergent properties of TPW-D keep insoluble particles in suspension and favor perfect fuel atomization, optimization of injection and combustion.

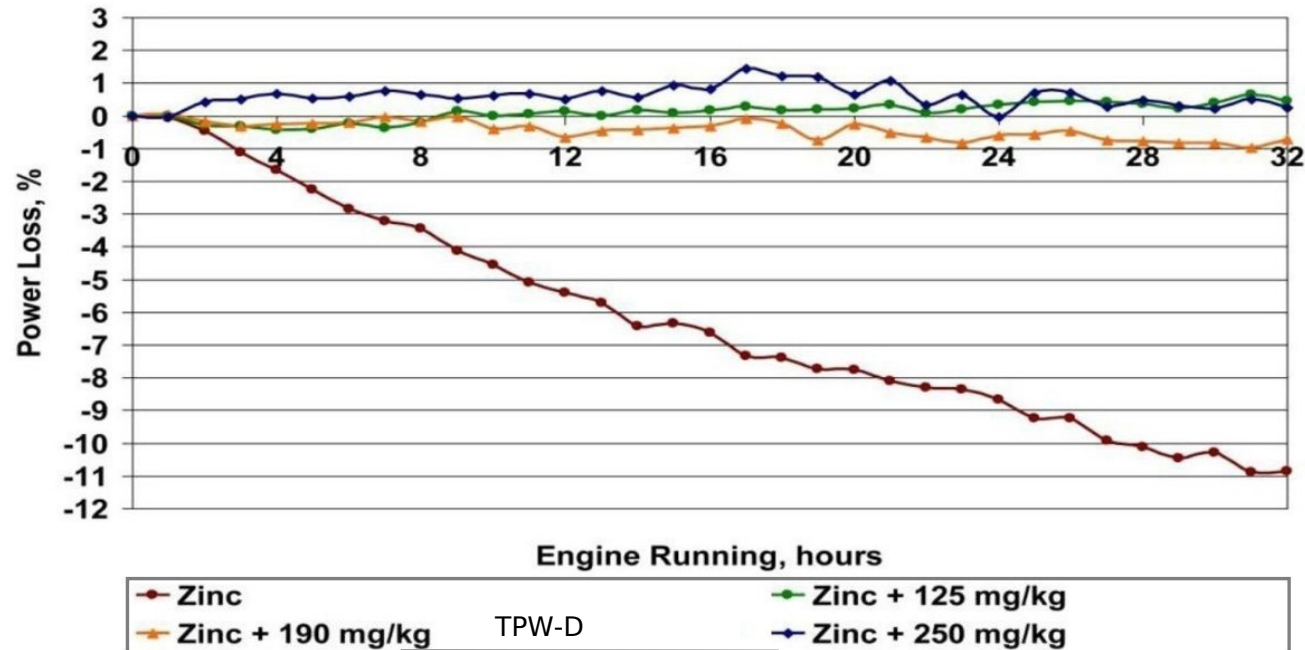


XUD9 PERFORMANCE

- ❑ Excellent additive performance relative to current commercial additives.
- ❑ Improved XUD action across a range of performance levels.



PERFORMANCE DW10 KEEP CLEAN



- ❑ Excellent action DW10 keep clean with high performance at low dosage TPW-D.
- ❑ Existing XUD9 detergent formulations provide high performance only at higher dosages, i.e. > 1500 mg / kg.



DIESEL + TPW-D

UNPROCESSED FUEL AFTER 20,000
KM



FUEL WITH TPW-D AFTER 50,000
KM (PMI)



Use base diesel fuel without depressant-dispersant additives.

- The TPW-DW series of additives includes a wide range of additives for various types of diesel fuels.
- The dosage of additives is carefully selected for each specific type of diesel fuel for the most effective manifestation of their properties, which ensures an improvement in low-temperature properties.
- The additives provide an improvement in the low-temperature properties of diesel fuel by fifteen to twenty degrees and below.
- In the production of diesel fuel for the Arctic climate, it is recommended to



TPW-DW SERIES ADDITIVES

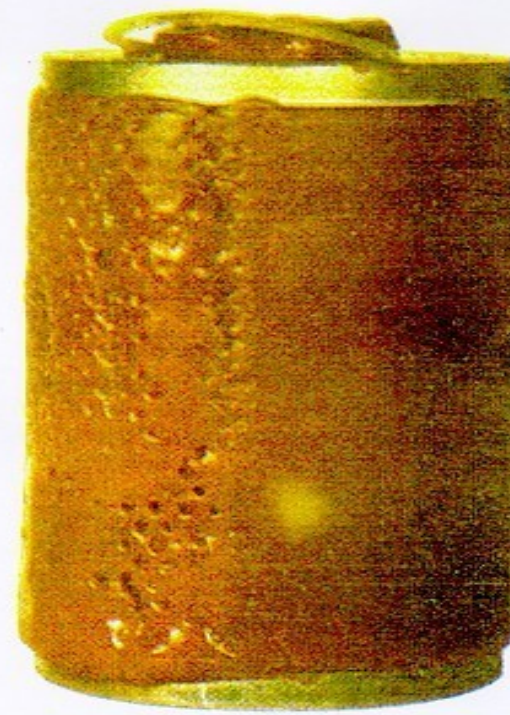
CLOGGING OF FILTER WITH PARAFFINS

Filters taken from similar vehicles operating at the same low temperature.



Low cloud
untreated fuel

WITH ADDITIVE



Higher cloud
Additive treated fuel

Without additive



ADDITIVES TO IMPROVE THE EFFICIENCY AND SAFETY OF THE USE OF FUEL OIL, COAL AND COKE

POTENTIAL PROBLEMS

BEFORE COMBUSTION	COMBUSTION	AFTER COMBUSTION
Asphaltenes	Asphaltenes	Vanadium, sodium and metals
Incompatibility	Atomization problems	High temperature corrosion
Stability	High boiling point and MCR	Clogge of turbocharger
Sludge in tanks	Ignition delay	Burnout of exhaust valves
Clogged filters	After combustion	Brimstone
Purifier efficiency	Incomplete combustion	Low temperature corrosion
Fuel oil heaters	Deposits	Carbon / Hydrocarbon
Viscometers	Incomplete combustion of hydrocarbons	Soot deposition
Abrasive particles	Abrasive particles	Turbocharger clogging
Deterioration of fuel system equipment	Wear of engine parts	Boiler / economizer clogging
		Risk of boiler fire

SOLUTION WITH THE HELP OF USE OF ADDITIVES

PRE-COMBUSTION ADDITIVES

- ▶ Improves fuel stability.
- ▶ Improves fuel compatibility.
- ▶ Have a positive detergent effect on organic materials.
- ▶ Reduces sludge formation in the separator.

Combustion catalysts

- ▶ Reduces unburned carbon deposits and improves lubricating oil cleanliness, resulting in less engine wear.
- ▶ Significantly improves economizer cleanliness.
- ▶ Reduces the environmental impact of unburned carbon.



SOLUTION WITH THE HELP OF USE OF ADDITIVES

POST-COMBUSTION ADDITIVES

- ▶ Increases the melting point of vanadium (V) / sodium (Na) components (sodium vanadates).
- ▶ Prevents / reduces ash deposits on exhaust valves and turbochargers with magnesium inhibitor / ash modifier.
- ▶ Economizers stay cleaner longer with combustion catalyst.

SPECIALIZED PRODUCTS FOR MARINE FUELS

- ▶ A variety of specialized additives, not necessary for heavy fuel oil.



ADDITIVES HHO SERIES

- ☐ HHO series additives offer a wide range of solutions to problems associated with the use of coal, coke, heavy fuel oils :
- ☐ Incompatibility of heavy fuel oils with each other.
- ☐ Stability of heavy fuel oil.
- ☐ Low calorific value.
- ☐ Hot deposits.
- ☐ High temperature corrosion.
- ☐ Warm deposits.
- ☐ Hot corrosion.
- ☐ Reacts with SO₃ and forms MgSO₄ ($\text{MgO} + \text{SO}_3 \rightarrow \text{MgSO}_4$).
- ☐ Catalyst reduces excess air by reducing the conversion of SO₂ to SO₃.
- ☐ Ash particles dry out and form less deposits on the air heater.



CARBO ANTIFREEZE

ANTIFREEZE BASED AGENT, USED IN WINTER TIME, TO PREVENT LOAN MATERIALS (FOR EXAMPLE, COAL, SAND) FROSTING TO THE WALLS OF RAILWAY CARS.



CARBO ANTIFREEZE

- ▶ Carbo antifreeze is an innovative product and has a double effect :
 - ▶ reduces the freezing point of water;
 - ▶ prevents it from freezing.
- ▶ At lower concentrations, carbo antifreeze changes the structure of the ice in such a way that the ice loses its binding properties.
- ▶ Carbo antifreeze prevents water from freezing on coal and other solid particles (subfreezing).
- ▶ Carbo antifreeze protects material handling equipment (conveyors, wagons, trucks) and other surfaces prone to freezing.
- ▶ Carbo antifreeze is specially manufactured and designed for storage, shipping and transportation of coal and other solid particles in areas with cold climates and in areas where the air temperature is below freezing point.
- ▶ Carbo antifreeze is environmentally friendly, odorless and cost effective.



CARBO ANTIFREEZE

- ▶ Carbo antifreeze is sprayed directly onto bulk materials or onto the walls of coal transport wagons.
- ▶ Carbo antifreeze is preferably applied before snow or freezing rain falls. After treatment with the product, water from the surface of coal or other particles, during the ingress of snow or freezing rain on them, evaporates, leaving the remains of carbo antifreeze on solid parts.
- ▶ In the event that carbo antifreeze is sprayed onto a previously formed ice or frozen mass of ice and snow, the solution will tend to dissolve the frozen mass.
- ▶ Carbo antifreeze is a ready-to-use product and does not require dilution. However, to keep costs down, it can be diluted with water at normal temperature in case of milder frosts.
- ▶ The dilution method depends on temperature conditions and must be individually determined according to needs.
- ▶ Typical product consumption about 0.25 kg / m² or more depending on the ambient temperature.

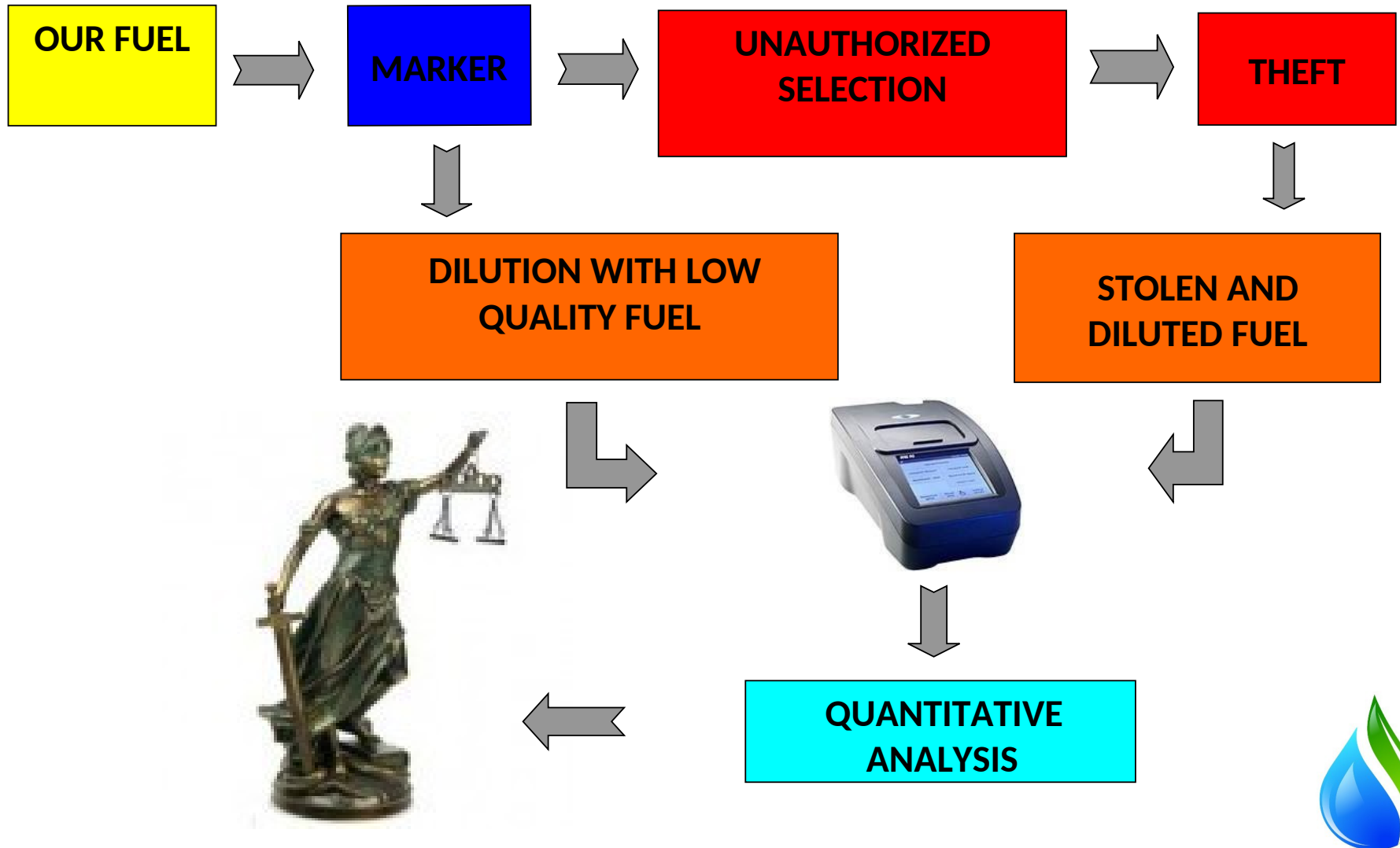


MARKERS

- ☐ Markers are used for the following purposes:
 - identification of fuel source, brand or class;;
 - fuel definitions for tax purposes;
 - protection against misuse of fuel
- ☐ Markers can be combined with visual dyes;
- ☐ Markers do not adversely affect the physical and chemical properties of the fuel.



MARKER



SPECIAL OFFER FOR OUR CLIENTS

- ✓ The company provides services for the analysis of samples of your fuel in order to develop an exclusive formulation of additives for modifying these samples and getting the maximum effect from its use.
- ✓ Our specialists have developed and manufactured a unit for adding additives to diesel fuel, which ensures the correct technological process of mixing and obtaining the optimal characteristics of the final product.





Dane Bankowe: MagicFuel Sp.z O.O. Warszawa PL

REGION: 521812460

NIP: 9512539563

ul. Adama Branickiego, nr 21, lok.U3

<https://www.magicfuels.com/>

magicfuel@gmail.com