

Product Name: NiQuan Clean Marine™



NiQuan Energy  
CLEAN ENERGY FUELING A CLEANER WORLD

Product Category: Clean Marine Fuel

#### Description:

NiQuan Clean Marine™ fuel is a clean, essentially zero sulfur, biodegradable drop in fuel that can be used in the engines of shipping vessels without modification. This product is an on-spec, compression ignition fuel (EN15940), the two primary characteristics of which are essentially a zero-sulfur content and a very high cetane rating. The near zero sulfur quality is a function of the production process which requires the removal of sulfur from the natural gas feedstock to protect the catalyst.

NiQuan Clean Marine™ fuel is biodegradable with low absorbance making it a benign fuel in marine environments and safer to handle. Its higher flashpoint makes it safer to store and it has greater resistance to microorganism contamination, which improves product life and performance, making it a fuel of choice for emergency backup systems.

#### NiQuan Clean Marine™ Specifications

Property	Unit	Min	Max	Typical (estimated)	Test Method
Specific Gravity @ 15°C		0.75	0.81	0.775	ASTM D1298 / ASTM D4052
Colour			1.5	< 1	ASTM D1500
Appearance			Clear & Bright	Clear & Bright	Visual
Flash Point	°C	62		75	ASTM D93
Water & Sediment	Vol %		0.05	< 0.05	ASTM D2709
Sediment by Extraction	Mass %		0.01	< 0.01	ASTM D473
Total Acid Number	Mg KOH/g		0.1	< 0.01	ASTM D974
Strong Acid Number	Mg KOH/g		0	0	ASTM D974
Cetane Number		70		74	ASTM D613
Distillation					ASTM D86
10% Volume Recovered	°C	Report		200	ASTM D86
50% Volume Recovered	°C		292	255	ASTM D86
90% Volume Recovered	°C	282	338	310	ASTM D86
95% Volume Recovered	°C	Report		315	ASTM D86
Final Boiling Point	°C		360	328	ASTM D86
Residue	Vol %		2.0	1	ASTM D86
Cloud Point	°C		+5	< 0	ASTM D2500 / ASTM D5771
Pour Point	°C		0	-18	ASTM D97 / ASTM D5950
Carbon Residue on 10% Bottoms	Mass %		0.10	< 0.10	ASTM D4530
Sulphur Content	ppm		<1.0	< 1.0	ASTM D4294 / ASTM D5453
Ash	Mass %		0.01	< 0.01	ASTM D482
Copper Strip Corrosion Resistance (3h at 50°C)			1	1	ASTM D130
Kinematic Viscosity at 40°C	cSt	2.0	4.1	2.2	ASTM D445
Oxidation Stability	Mg/100ml		1.0	< 1.0	ASTM D2274
Polycyclic Aromatics	Vol %		0.1	< 0.1	ASTM D5186 / IP 391
Total Aromatics	Vol %		5	< 0.5	ASTM D5186 / IP 391