

R: Resistant

The coating is chemically resistant enough to be used as tank lining for permanent exposure.

NR: Not Resistant

The coating is not resistant and is not recommended to be used as tank lining for this chemical

Resistance is based on temperatures not exceeding 40°C. Products that are viscous or solid at normal temperatures can be stored up to 70°C. Exceptions are when there is a maximum temperature given in the Resistance List.

Note 1 Coating discoloration

The coating may be discoloured from this cargo. This discolouration will not affect the chemical resistance of the coating.

Note 2 Beverage and potable liquids

Although the coatings are resistant to these cargoes, taste or odour from the coating may transmit to the beverages and potable liquids.

Note 3 Unleaded gasoline

Many unleaded gasolines may have added considerable amounts of oxygenated solvents, and can vary quite a lot in composition. The European Directive 98/70 has set the following limits:

	Unit	Limits	
		Minimum	Maximum
Hydrocarbon:			
Olefines	% v/v	-	18.0
Aromatics	% v/v	-	35.0
Benzene	% v/v	-	1.0
Oxygen content	% m/m	-	3.7
Oxygenates:			
Methanol, stabilizing agents must be added	% v/v	-	3
Ethanol, stabilizing agents may be necessary	% v/v	-	5
Isopropyl alcohol	% v/v	-	12
Tert buthyl alcohol	% v/v	-	15
Isobutyl alcohol	% v/v	-	15
Ethers containing > C5	% v/v	-	22
Other oxygenates ¹⁾	% v/v	-	15
Sulphur content	mg/kg	-	10
Lead content	g/l		0.005

¹⁾ Other mono-alcohols and ethers with a final boiling point no higher than that stated in EN 228:2012..

Blending of automotive gasolines with above mentioned additives in the tank are not acceptable.

For unleaded gasoline containing other additives or concentrations of additives than mentioned in this note, Jotun TSS should be consulted.

Note 4 Palm oil products, animal and vegetable oils and fats

Palm oil products may contain residues of sulphuric acid from the refining process. The palm oil products must comply with the PORIM specification of Malaysia and be absolutely free from mineral acids (e.g. sulphuric acid).

Animal or vegetable oils contain varying amounts of free fatty acids (FFA) according to origin and age of oil. Solid or semi-solid products might be stored at elevated temperatures, and this will increase the acidity. The acid value (ASTM D-1980) should not exceed 4 in tanks coated with Tankguard Zinc, 30 in tanks coated with Tankguard HB Classic or Tankguard SF, 80 in tanks coated with Tankguard Storage, and with no limitations for tanks coated with Tankguard Plus or Chemflake Special.

In addition, the maximum acceptable content of water shall be 0,1%.

Note 5 Contamination of the product stored

Due to the properties of the coating there is a possibility of a slight zinc pick up in the product stored. The zinc pick up has no effect on the coating but may affect the quality of the product stored.

Note 6 Hydrolysable products and amines

Esters, chlorinated and brominated compounds and amines will react with any moisture present in the tank to form acids or alkalis that will attack the coating. Such products must therefore be free from moisture and stored in completely dry tanks that are protected against water leaks.

Note 7 Crude oil

Crude oil and fuel oil may contain variable amounts of acidic material, and the acid value should be determined and Jotun consulted before crude oil is stored in tanks coated with Tankguard Zinc. Maximum acceptable neutralisation number is 0.4 (ASTM-664).

Note 8 Automotive fuels - ethanol fuel mixtures

Anhydrous ethanol can be blended with gasoline in varying quantities up to pure ethanol (E5 - E100).

In the EN 15376:2014, ethanol as blending component for petrol, the requirements are stated for such use, and in the table below some limits are set:

	Unit	Limits		Test method
		Minimum	Maximum	
Ethanol content + higher saturated alcohols	% (m/m)	98,7		EN15721
Higher saturated (C3-C5) mono alcohols content	% (m/m)	-	2.00	EN15721
Methanol content	% (m/m)		1.00	EN15721
Water content	% (m/m)	-	0.30	EN 15489
Sulphur content	mg/kg	-	10.0	EN 15489

The gasoline used has to be according to the requirements set in note 3.

Note 9 Automotive fuels - fatty acid methyl ester (FAME) for diesel engines

Fatty acid methyl esters can vary wildly in composition. Before these products are stored, the tank coating should be fully cured.

The requirements for these types of automotive fuels are stated in EN 14214, with some of the requirements given in the following table:

	Unit	Limits		Test method
		Minimum	Maximum	
Water content	mg/kg	-	500	EN ISO 12937
Acid value	Mg KOH/g	-	0.5	EN 14104

Methanol content	% (m/m)	-	0.2	EN 14110
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Note 10 Mineral acids

The upper layer of Chemflake Special may be discoloured by certain mineral acids, like hydrochloric acid, nitric acid, phosphoric acid, sulphuric acid etc. The reaction product has a strong red colour and may discolour the acid into a pink colour.

Note 11 Aviation fuel

The coating is chemically resistant, but does not have the approvals required for use inside tanks for storage of aviation fuel.

Note 12 Potable water

The coating is chemically resistant, but does not have the approvals required for use inside tanks for storage of potable water.

Note 14 Phenol and Tankguard Zinc

Coating should be fully cured and water cleaned prior to loading this chemical.

Note 15 Lubricating, hydraulic, transformer and motor oils

The resistance data is given for mineral oils. Different composition and content of additives may alter the resistance. Contact local TSS for further advice.

DISCLAIMER

The information in this document is given to the best of our knowledge based on laboratory testing and practical experience. We reserve the right to change the given data without notice.