



# Screenwash & De-icer, Antifreeze, Brake Fluid



**Petrochem Carless** offers an extensive range of automotive antifreezes, screenwashes, de-icing concentrates and brake fluids. These products are formulated to meet the exacting needs of modern high performance vehicles.



## Screenwash & de-icing concentrate

### Industry issues

Screenwash and de-icing concentrate is used in vehicle windscreen and headlight washing systems. It is added to water to provide a cleaning liquid used all year round, and used in different concentrations to provide different levels of frost protection to the wash system.

De-icing concentrate is also used in hand-held de-icing sprays and lock de-icer products. Critical industry issues are retail labelling requirements, cleaning performance, freeze protection properties and compatibility with vehicle and wiper blade finishes and components.

### Petroscreen RSV 2301 E

Petroscreen RSV 2301 E is an environment-friendly premium grade screenwash and de-icing concentrate especially designed to meet the stringent performance standards of today's automotive industry.

Due to its specific formulation properties, Petroscreen RSV 2301 E provides maximum freezing protection, surpasses the highest cleaning standards, does not affect synthetic surfaces and can be filled in retail packaging without fire or hazard warning symbols.

Petroscreen RSV 2301 E is available in a range of colours and fragrances allowing customers to create custom packages according to their specific market requirements.

- Freezing protection below -75°C
- Safe and environment-friendly formulation :  
(contains no Methanol, EDTA, phosphates, amines or nitrites);
- High Flashpoint (23°C) :  
both concentrate and diluted product require no fire or hazard warning symbols and ADR exemption can be obtained for certain packaging sizes;
- Cleaning performance exceeds standards set by German Institute;
- Does not affect polycarbonates, lacquers or rubbers;
- Product can be dyed or perfumed to customers' requirements.

### Typical properties

RSV 2301 E fluids demonstrate the following characteristics.

	TEST METHOD	TYPICAL
Flash point °C	DIN51 775	23
Density 15°C Kg/m <sup>3</sup>	ASTM D1298	0.929
Stress cracking in polycarbonates	Hella	Passes
Lacquer	ASTM D1882	Passes

### Freezing point

RSV 2301 E fluids demonstrate the following freezing point (first crystals) characteristics.

	TEST METHOD	FREEZING POINT
Aqueous solution % 100	ASTM D1177*	<-75
Aqueous solution % 90/10	ASTM D1177*	<-60
Aqueous solution % 80/20	ASTM D1177*	<-51
Aqueous solution % 70/30	ASTM D1177*	<-42
Aqueous solution % 67/33	ASTM D1177*	<-36
Aqueous solution % 60/40	ASTM D1177*	<-33
Aqueous solution % 50/50	ASTM D1177*	<-25
Aqueous solution % 45/55	ASTM D1177*	<-20
Aqueous solution % 33/66	ASTM D1177*	<-15

\*modified

## Antifreeze

Modern engine coolants are more than just antifreeze. They are year round engine coolants that provide not only frost protection, but also protect the range of metals found in modern automotive cooling systems against corrosion. Antifreezes must also have good compatibility with elastomers and have low foaming and low scaling characteristics to ensure optimum heat transfer performance.

Modern coolants must be suitable for use in all cooling systems whether they are constructed predominantly from traditional ferrous metals or the more modern aluminium alloys and polymeric composites.

In certain applications the use of specific corrosion inhibitors is not permissible or desirable for technical or environmental reasons. Specialised formulations are required to meet these criteria and maintain high performance levels

### Ethylene Glycol based products

#### GP3 / AF1

UNIVERSAL MEG BASED ANTIFREEZE  
This proven MEG based antifreeze is designed to be a low cost truly universal product providing effective frost and corrosion protection.

- Suitable for both aluminium and ferrous cooling systems in both petrol and diesel engines.
- High degree of corrosion protection in all applications.
- NAP(nitrite/amine/phosphate) free formulation helps safeguard health.
- Exceeds national standards BS 6580 -1992 and AFNOR NFR 15-6001.

#### HD4X

MEG BASED UNIVERSAL ANTIFREEZE  
Specifically designed to meet the requirements of heavy duty engine manufacturers, this antifreeze contains an advanced robust inhibitor package.

- Inhibitor package includes nitrite to provide additional protection against cavitation erosion / corrosion

- (SCA) as prescribed by many heavy duty engine manufacturers.
- Exceeds National Standards BS 6580 – 1992 and AFNOR NFR 15-601.
- Meets requirements of ASTM D-6210 for heavy duty engines.

#### EXLC5

EXTENDED LIFE ANTIFREEZE

This MEG based product uses inhibitors employing organic acid technology (OAT) to provide long lasting corrosion protection for up to 5 years or 150 000 miles.

- Borate / phosphate / nitrite / amine free formulation helps safeguard health and the environment.
- Non phosphate / non silicate formulation reduces potential for damage from hard water deposits.
- Exceeds the requirements of BS 6580–1992 and ASTM D-3306 type 1 and exceeds the requirements of most motor manufacturers.

### Typical properties of engine coolants

	GP3/AF1	HD4X	EXLC5	MPG 101	PXLC5
Specific gravity 20/4	1.1255	1.1330	1.1250	1.0510	1.040
Reserve alkalinity mls 0.1M HCl	21	14	5	12	5
ph 33% vol soln.	8.2	8.2	7.5	7.9	7.5
Equilibrium reflux boiling point °C	160	163	168	165	170
Min glycol content % weight	94	92	92	93	92

## Propylene Glycol based products

### MPG Coolant 101

TRIGUARD™

This revolutionary antifreeze is made from mono propylene glycol (MPG) which is much less toxic than traditional MEG based products. Extensive tests show that well inhibited mono propylene glycol based antifreezes are just as effective as MEG based products in providing freeze and corrosion protection.

- Advanced mono propylene glycol based formulation.
- Significantly reduced toxicity, yet similar freeze / corrosion performance compared to MEG based alternatives.
- Exceeds requirements of BS 6580, AFNOR NFR 15-601 and ASTM D-3306 Type III.

### PXLC5

EXTENDED LIFE MPG COOLANT

This low toxicity MPG based product uses inhibitors employing organic acid technology (OAT) to provide long lasting corrosion protection for up to 5 years or 150 000 miles.

- Borate / phosphate / nitrite / amine free MPG formulation helps safeguard health and the environment.
- Non phosphate / non silicate formulation reduces potential for damage from hard water deposits.
- Exceeds the requirements of BS 6580–1992 and ASTM D-3306 Type III and exceeds the requirements of most motor manufacturers.

## Ethylene Glycol Antifreezes

	Concentration by volume %						
	0	10	20	30	40	50	60
Specific gravity 20/4	0.998	1.010	1.019	1.032	1.041	1.047	1.053
Refractive index $n_D^{20}$	1.3331	1.3445	1.3570	1.3682	1.3772	1.3879	1.4005
Freezing Point °C	0	-3	-7	-12	-21	-33	7.5

## Propylene Glycol Antifreezes

	Concentration by volume %						
	0	10	20	30	40	50	60
Specific gravity 20/4	0.998	1.014	1.030	1.045	1.060	1.074	1.087
Refractive index $n_D^{20}$	1.3331	1.3425	1.3523	1.3622	1.3728	1.3831	1.3931
Freezing point °C	0	-4	-9	-15	-24	-37	-52



## Brake fluids

### Industry issues

Brake fluids must meet the most rigorous performance standards. Critical factors include dry and wet equilibrium boiling points, viscosity, pH, rubber swell and material compatibility with braking systems components.

Petrochem Carless' brake fluids exceed the world's toughest standards, including those set by the Department of Transport, the Society of Automotive Engineers, Federal Motor Vehicle Safety Standards Society and the International Organisation for Standardisation of brake fluid

specifications. Each fluid is available in a range of equilibrium reflux boiling points to suit individual customer requirements.



### DOT 3

DOT 3 brake and clutch fluids are glycol ether based hydraulic fluids.

- Formulated to meet FMVSS 116 DOT 3, SAE J1703 and ISO 4925.
- Available in bulk and drums.
- Available as finished product or a 2 component product.

### Typical properties of DOT 3 XD 230 brake fluid

	TYPICAL	FMVSS 116	SAE J1703	ISO 4925
Equilibrium relux boiling point °C	240	205 min	205 min	205 min
Wet equilibrium relux boiling point °C	142	140 min	140 min	140min
Viscosity -40°C cSt	1360	1500 max	1800 max	1500max
Viscosity @100°C cSt	1.7	1.5 min	1.5 min	1.5 min
Rubber swell 120c 3 days mm	1.1	0.15-1.4	0.15-1.4	0.15-1.4
Aqueous ethanol ph	9.5	7.0-11.5	7.0-11.5	7.0-11.5
Colour	Pale yellow	Colourless to amber	N/A	Not red or green

### DOT 4

DOT 4 brake and clutch fluids are glycol ether/borate ester based hydraulic fluids designed for higher wet and dry boiling point applications.

- Formulated to meet FMVSS 116 DOT 4, SAE J1703 and ISO 4925.
- Available in bulk and drums as a finished product.

### Typical properties of DOT 4 brake fluid

	TYPICAL	FMVSS 116	SAE J1703	ISO 4925
Equilibrium relux boiling point °C	267	230 min	205 min	205 min
Wet equilibrium relux boiling point °C	167	155 min	140 min	140 min
Viscosity -40°C cSt	1200	1800 max	1800 max	1500 max
Viscosity @100°C cSt	2.3	1.5 min	1.5 min	1.5 min
Rubber swell 120c 3 days mm	0.7	0.15-1.4	0.15-1.4	0.15-1.4
Aqueous ethanol ph	7.3	7.0-11.5	7.0-11.5	7.0-11.5
Colour	Pale yellow	Colourless to amber	Colourless	Not red or green

### DOT 5.1

DOT 5.1 is a high performance borate ester based hydraulic fluid.

- Formulated to meet FMVSS DOT 5.1, SAE J1704 and ISO 4925.
- Available in bulk and drums as a finished product.

### Typical properties of DOT 5.1 brake fluid

	TYPICAL	FMVSS	SAE J1703	ISO 4925
Equilibrium relux boiling point °C	275	260 min	230 min	205 min
Wet equilibrium relux boiling point °C	184	180 min	155 min	140 min
Viscosity -40°C	815	900 max	1800 max	1500 max
Viscosity @100°C	2.1	1.5 min	1.5 min	1.5 min
Rubber swell 120c, 3 days, mm	0.8	0.15-1.4	N/A	0.15-1.4
Rubber swell volume %	9	N/A	1-16	1-16
Aqueous ethanol ph	7.3	7.0-11.5	7.0-11.5	7.0-11.5
Colour	Pale yellow	Colourless to amber	N/A	Not red or green

**Product Range**

Alcohols  
Aliphatic Solvents  
Amines  
Aromatics  
Automotive Products

Blends  
Burning Oils  
Chlorinated Solvents  
Custom Processing  
Drilling Mud Fluids

Esters  
Glycols  
Glycol Ethers/Esters  
Ketones  
Heat Transfer Fluids

Performance Fuels  
Plasticisers  
Printing Ink Distillates  
Process Oils  
Refinery Naphthas

Special Kerosines  
Speciality Base Oils  
White Oils  
Other products

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