

Overview

PGS is a heavy-duty, nitrated, propylene glycol-based heat transfer fluid (HTF) specifically designed to be used in stationary engine applications. It contains a full complement of heavy-duty inhibitors, including a minimum of 2400 ppm Nitrite (as NO₂) in concentrate. The formulation is silicate-free, and phosphate-free which minimizes the problems associated with hot surface scaling that may be experienced with other fluids. PGS provides outstanding protection from cavitation erosion/corrosion in water pumps and wet sleeve cylinder liners, as well as excellent overall corrosion protection

Product Benefits

PGS contains an advanced inhibitor system that provides a wide range of inhibitors which protect all system metals. These inhibitors combined with the propylene glycol base, give year-round protection against freeze-ups, boil-overs and engine cooling system corrosion. This industrial HTF includes ingredients to disperse minor oil leakage, prevent fouling, control hot surface scaling and it will not damage paint finishes or rubber parts.

Product Features:

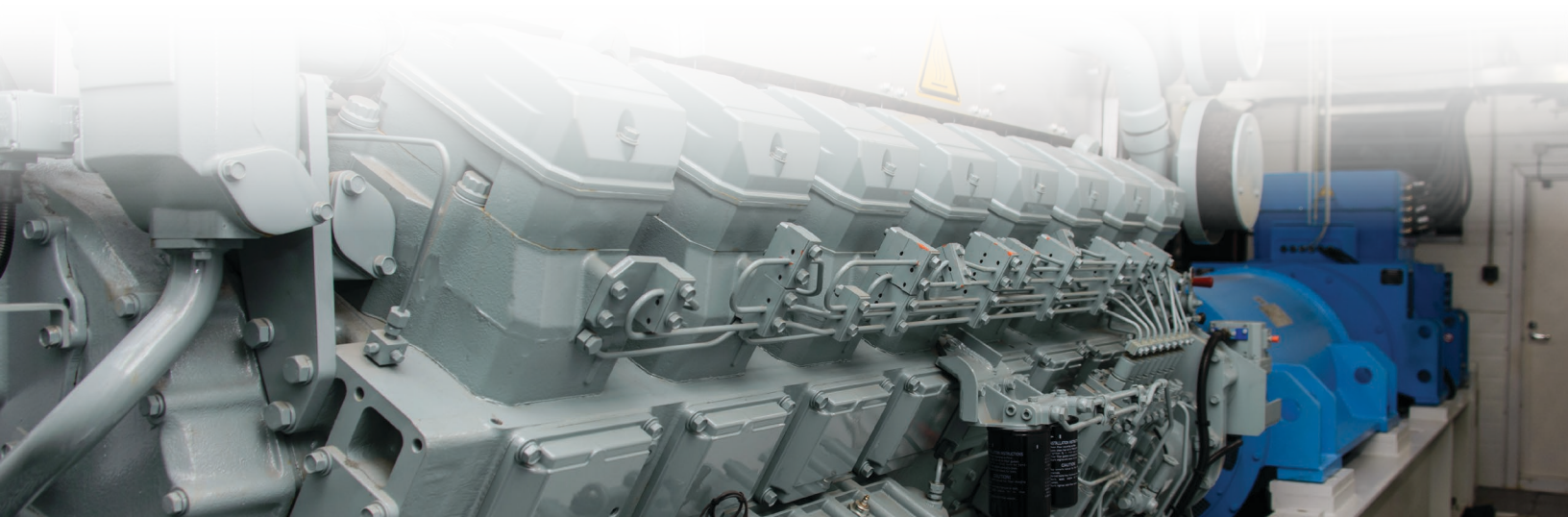
- Advanced inhibitor system.
- Meets the performance requirements of ASTM D6210, ASTM D4985, and ASTM D3306, including D1384.
- Protects all system metals.
- Year-round protection against freeze-ups, boil-overs, and engine cooling system corrosion.
- Helps prevent scaling and fouling of heat transfer surfaces.

Applications:

- Oil & Gas industry
- Natural gas processing
- Power generation
- Compressor engines
- Heavy duty industry applications

Recommended for use in the following applications but not limited to these exclusively:

- Cummins CES14603
- Cummins 90T8-4
- John Deere H24
- EMD M.I. 1748E
- Caterpillar DEAC
- Waukesha 4-1974D





PGS
PROPYLENE GLYCOL-BASED
STATIONARY ENGINE HEAT TRANSFER FLUID

Characteristic	Specification	Company Typical	ASTM Method
Chloride (ppm)	25 maximum	2	D3634
Specific gravity, 60/60°F	1.05-1.06	1.055	D1122
Nitrite (ppm)	2400 minimum	2700	D5827
Boiling Point, 50% V/V	> 212°F/100°C	222°F	D1120
Freezing Point, 50% V/V	< -20°F/-29°C	-31°F	D1177
Ash content, mass %	2.5 maximum	2.0	D1119
pH, 50% V/V	9.5-10.8	10.3	D1287
Reserve alkalinity*	None specified	10 minimum	D1121
Water mass %	None specified	3.0 maximum	D1123
Color	Distinctive	Blue	--
Storage stability	None specified	> 1 year	--

*Reserve alkalinity (RA) is a value agreed between the customer and supplier. The RA listed above is the typical for the additive package being used.

Physical Properties		
Glycols	Mass %	95.0 Minimum
Corrosion Inhibitors and Water	Mass %	5.0 Maximum
Flash Point	°F	>200°F
Weight per gallon at 60° F-16° C	lbs.	8.8 Minimum
Silicates	Mass %	Nil

% PG (Volume)	Freezing Point		Boiling Point*	
	°F	°C	°F	°C
50%	-31	-35	222	106
60%	-59	-51	225	107

*Boiling point shown at atmospheric pressure. Add 40°F for 15 psi radiator cap

Water Quality Requirements

Water used to dilute the PGS concentrate can be low-hardness, city water, or well water, although the use of deionized water is best. It is recommended that water with no more than 350 ppm hardness be used to dilute concentrate or be used as make-up water. For optimal performance, water hardness should be below 170 mg/L as CaCO3.

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Please visit <https://www.crystal-clean.com/htf-disclaimer> for full details.

Additional Water Quality Limits (Maximum)

Chlorides	40 ppm
Sulfate	100 ppm
pH	5.5 to 9.0
Iron	1.0 ppm

NOTE: Used Heat Transfer Fluids in most states are not hazardous unless it contains more than 5 ppm of lead. We recommend that spent fluid **never** be disposed of by dumping into a storm sewer or onto the ground. Instead, contact your local municipality for instructions on where to and how to properly dispose of this fluid and protect our environment.

Overview

EGS is a heavy-duty, nitrited, ethylene glycol-based heat transfer fluid (HTF) specifically designed to be used in stationary engine applications. It contains a full complement of heavy-duty inhibitors, including a minimum of 2400 ppm Nitrite (as NO₂) in concentrate. The formulation is silicate-free, and phosphate-free which minimizes the problems associated with hot surface scaling that may be experienced with other fluids. EGS provides outstanding protection from cavitation erosion/corrosion in water pumps and wet sleeve cylinder liners, as well as excellent overall corrosion protection.

Product Benefits

EGS contains an advanced inhibitor system that provides a wide range of inhibitors which protect all system metals. These inhibitors combined with the glycol base, give year-round protection against freeze-ups, boil-overs and engine cooling system corrosion. This industrial HTF includes ingredients to disperse minor oil leakage, prevent fouling, control hot surface scaling and it will not damage paint finishes or rubber parts.

Product Features:

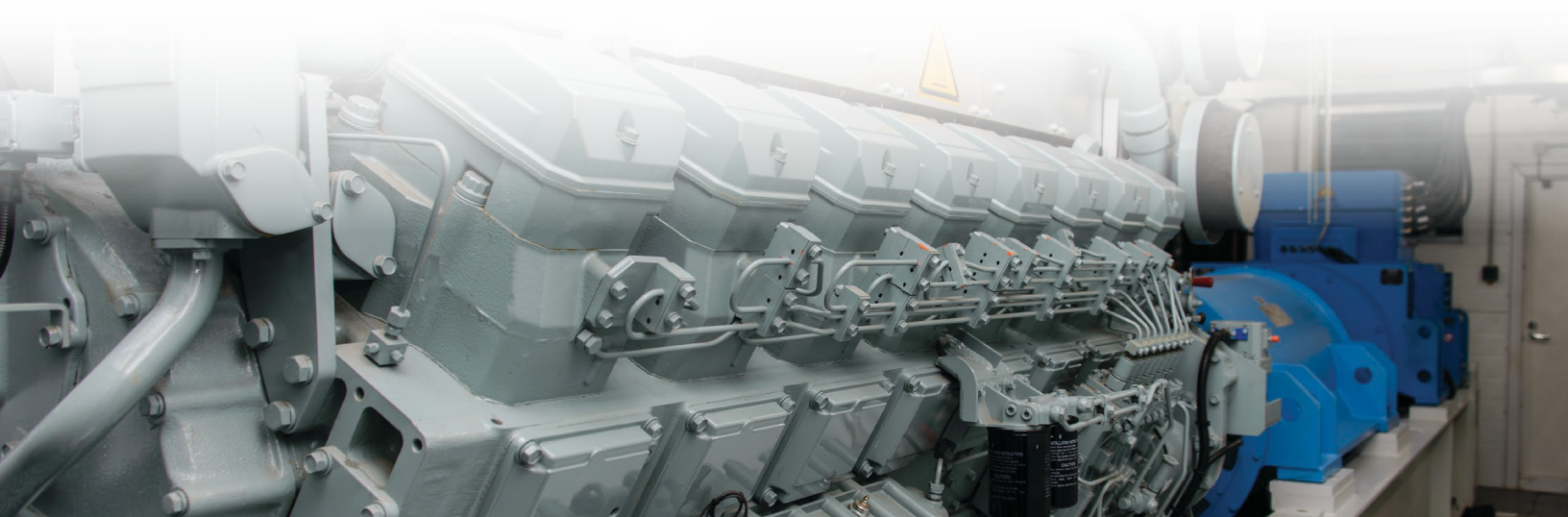
- Advanced inhibitor system.
- Meets the performance requirements of ASTM D6210, ASTM D4985, and ASTM D3306, including D1384.
- Protects all system metals.
- Year-round protection against freeze-ups, boil-overs, and engine cooling system corrosion.
- Helps prevent scaling and fouling of heat transfer surfaces.

Applications:

- Oil & Gas industry
- Natural gas processing
- Power generation
- Compressor engines
- Heavy duty industry applications

Recommended for use in the following applications but not limited to these exclusively:

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- Cummins 90T8-4
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- Caterpillar DEAC
- Waukesha 4-1974D





Characteristic	Specification	Company Typical	ASTM Method
Chloride (ppm)	25 Maximum	2	D3634
Specific gravity, 60/60°F	1.110-1.145	1.125	D1122
Nitrite (ppm)	2400 Minimum	2700	D5827
Boiling Point, 50% V/V	226°F/108°C	226°F	D1120
Freezing Point, 50% V/V	-34°F/-36°C Minimum	-36°F	D1177
Ash content, mass %	2.5 Maximum	2.0	D1119
pH, 50% V/V	9.5-10.8	10.3	D1287
Reserve alkalinity*	None specified	10 Minimum	D1121
Water mass %	None specified	2.0 Maximum	D1123
Color	Distinctive	Pink	--
Storage stability	None specified	> 1 year	--
Foaming	150 mL vol., Maximum 5 sec. break, Maximum	Pass	D1881

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Physical Properties		
Antifreeze Glycols	Mass %	95.0 Minimum
Corrosion Inhibitors and Water	Mass %	5.0 Maximum
Flash Point	°F	>200°F
Weight per gallon at 60° F-16° C	lbs.	9.35 Minimum
Silicates	Mass %	Nil

% EG (Volume)	Freezing Point		Boiling Point*	
	°F	°C	°F	°C
50%	-36	-38	226	108
60%	-59	51	232	111

*Boiling point shown at atmospheric pressure. Add 40°F for 15 psi radiator cap

Water Quality Requirements

Water used to dilute the EGS concentrate can be low-hardness, city water, or well water, although the use of deionized water is best. It is recommended that water with no more than 350 ppm hardness be used to dilute concentrate or be used as make-up water. For optimal performance, water hardness should be below 170 ppm as CaCO₃.

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Additional Water Quality Limits (Maximum)

Chlorides	40 ppm
Sulfate	100 ppm
pH	5.5 to 9.0
Iron	1.0 ppm

NOTE: Used Heat Transfer Fluids in most states are not hazardous unless it contains more than 5 ppm of lead. We recommend that spent fluid **never** be disposed of by dumping into a storm sewer or onto the ground. Instead, contact your local municipality for instructions on where to and how to properly dispose of this fluid and protect our environment.



PGI
PROPYLENE GLYCOL-BASED
INDUSTRIAL HEAT TRANSFER FLUID

PRODUCT	#227 [CONC.]	#217 [PREMIX]
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Overview

PGI-HTF is an industrial formulated heat transfer fluid containing an additive package that controls corrosion of metals, helps prevent scaling and fouling of heat transfer surfaces and buffers the pH to maintain it in the optimum operating range. PGI-HTF tested according to the ASTM standard methods, exceeds the performance requirements of the industry. The product is available as concentrate and ready-to-use premixes. The inhibitor system is based on a high-phosphate, multi-component formulation which makes it ideal for a wide variety of commercial and industrial applications.

Product Features:

- Inhibitor system is phosphate-based, plus additional ingredients for heavy industrial applications.
- Functionally equivalent to DOWFROST HD™ and JEFFCOOL® P150 and can be mixed with these products with no adverse effects.
- Operating range of -60°F to +300°F.
- Controls corrosion of system metals.
- Helps prevent fouling of heat transfer surfaces.
- Buffers the pH to maintain it in the optimal operating range.
- Propylene Glycol base reduces toxicity and disposal requirements.

Applications:

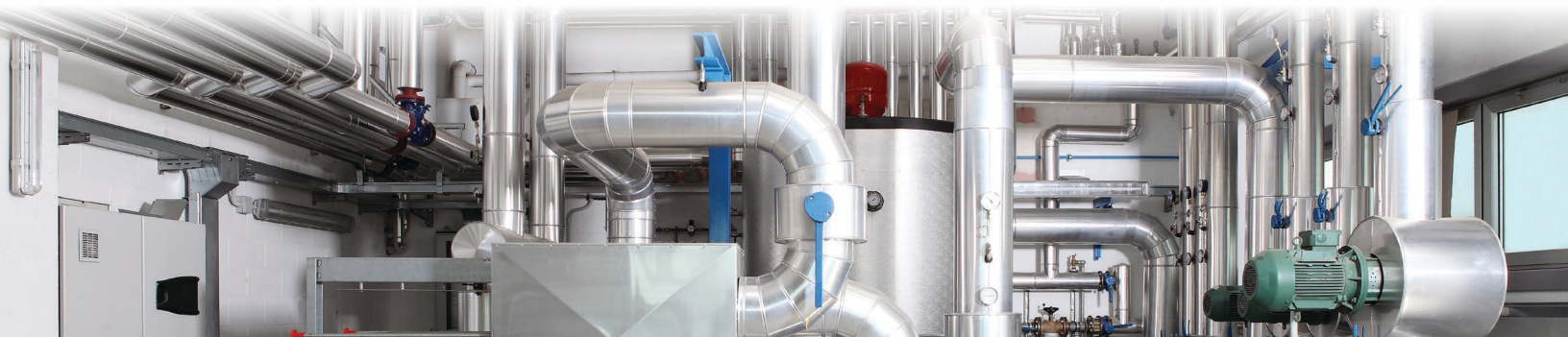
- HVAC system freeze / burst / corrosion protection
- Process cooling/heating
- Solar heating
- Floor heating
- Thermal energy storage
- Ice skating rinks
- Sidewalk snow melting systems
- Cold room dehumidification

Operating Temperature Range and Freeze/Burst Protection

PGI-HTF has a recommended operating temperature range of -60°F to +300°F, and can be used to provide both freeze and burst protection for systems which may be exposed to very low temperatures. To obtain adequate freeze protection, select a glycol concentration with a freeze point at least 5°F below the lowest anticipated ambient temperature. When diluting concentrate maintain at least 30% PGI by volume for adequate corrosion protection.

Corrosion Protection

PGI-HTF provides outstanding corrosion protection for copper, brass, solder, steel, and cast iron and aluminum. It meets or exceeds ASTM D8039/D8040. It is also compatible with most plastics, elastomers and types of rubber. Its corrosion protection system protects iron, steel, cast iron, brass, solder and aluminum protecting these metals from acidic attack and rust formation. The buffering system neutralizes acids formed by the normal thermal and oxidative degradation of glycols, thus maintaining the pH in its optimum range.





PGI
 PROPYLENE GLYCOL-BASED
 INDUSTRIAL HEAT TRANSFER FLUID

PRODUCT #227 [CONC.]	#217 [PREMIX]
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Physical Property	Temp(°F)	15% Glycol Solution	30% Glycol Solution	40% Glycol Solution	50% Glycol Solution	60% Glycol Solution
Thermal Conductivity [BTU/(hr·ft ³) (°F/ft)]	40	0.282	0.253	0.231	0.211	0.190
	180	0.327	0.285	0.255	0.228	0.199
	250	0.321	0.284	0.254	0.217	0.189
Specific Heat [(BTU/(lb·°F)]	40	0.955	0.915	0.855	0.802	0.740
	180	0.989	0.967	0.924	0.886	0.839
	250	1.010	0.992	0.995	0.973	0.942
Viscosity, Centipoise	40	2.85	5.69	9.58	14.01	23.11
	180	0.49	0.62	0.81	1.00	1.21
	250	0.20	0.38	0.34	0.37	0.39
Density, (lb/ft ³)	40	63.67	64.76	66.33	67.00	67.60
	180	61.36	62.01	62.91	63.79	64.11
	250	58.28	58.61	58.73	59.02	59.04

Composition (Concentrate)

Propylene Glycol 96.0 volume % max.
 Inhibitors & Proprietary Ingredients 4.0 volume % min.

Color *Pink*
(or custom dye option)

pH:
 50% Solution 9.5-10.8

Vol. % Propylene Glycol	Vol. % PGI-HTF Concentrate	Freezing Point °F	Boiling Point °F @ 760 mm Hg
15	15.6	22.7	213
30	31.2	8.4	216
40	41.6	-6.7	218
50	52.1	-28.6	222
60	62.5	-59.9	226

Specific Gravity @70°F(21.1°C)

96% Solution 1.04-1.06 min.
 50% Solution 1.030 min.

Reserve Alkalinity

96% Solution 10.0 mL min.
 50% Solution 5.0 mL min.

Flash Point Propylene Glycol

50% Solution none

Water Quality Requirements

Water used to dilute PGI-HTF can be low-hardness, city water or well water, although the use of deionized water or distilled water is best. It is recommended that water with no more than 170 ppm hardness be used to dilute PGI-HTF concentrate or be used as make-up water.

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EGI

ETHYLENE GLYCOL-BASED
INDUSTRIAL HEAT TRANSFER FLUID

PRODUCT #249 [CONC.] #239 [PREMIX]

Overview

EGI-HTF is an industrial formulated heat transfer fluid containing an inhibitor package that controls corrosion of metals, helps prevent scaling and fouling of heat transfer surfaces and buffers the pH to maintain it in the optimum operating range. EGI-HTF tested according to the ASTM standard methods, exceeds the performance requirements of the industry. The product is available as concentrate and ready-to-use premixes. The inhibitor system is based on a high-phosphate, multi-component formulation which makes it ideal for a wide variety of commercial and industrial applications.

Product Features:

- Inhibitor system is phosphate-based.
- Functionally equivalent to DOWTHERM™ and JEFFCOOL® E100 and can be mixed with these products with no adverse effects.
- Operating range of -60°F to +300°F.
- Controls corrosion of metals.
- Helps prevent scaling and fouling of heat transfer surfaces.
- Buffers the pH to maintain it in the optimal operating range.

Applications:

- HVAC system freeze/burst/corrosion protection
- Process cooling/heating
- Solar heating
- Floor heating
- Thermal energy storage
- Ice skating rinks
- Sidewalk snow melting systems
- Cold room dehumidification

Operating Temperature Range and Freeze/Burst Protection

EGI-HTF has a recommended operating temperature range of -60°F to +300°F and can be used to provide both freeze and burst protection for systems which may be exposed to very low temperatures. To obtain adequate freeze protection, select a glycol concentration with a freeze point at least 5°F below the lowest anticipated ambient temperature. When diluting concentrate maintain at least 30% EGI by volume for adequate corrosion protection.

Corrosion Protection

EGI-HTF provides outstanding corrosion protection for copper, brass, solder, steel, and cast iron and aluminum. It meets or exceeds the standard industry corrosion test for these metals. It is also compatible with most plastics, elastomers and types of rubber. The Inhibitor package protects iron, steel and aluminum metal surfaces from acidic attack and rust formation. EGI-HTF also contains Tolyltriazole to protect copper, brass and solder used in multi-metal systems. The buffering system neutralizes acids formed by the normal thermal and oxidative degradation of ethylene glycol, thus maintaining the pH in its optimal range.





EGI
ETHYLENE GLYCOL-BASED
INDUSTRIAL HEAT TRANSFER FLUID

PRODUCT #249 [CONC.]	#239 [PREMIX]
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Physical Property	Temp(°F)	15% Glycol Solution	30% Glycol Solution	40% Glycol Solution	50% Glycol Solution	60% Glycol Solution
Thermal Conductivity [BTU/(hr·ft ³) (°F/ft)]	40	0.265	0.253	0.234	0.215	0.199
	180	0.307	0.291	0.267	0.241	0.220
	250	0.310	0.293	0.269	0.245	0.224
Specific Heat [(BTU/(lb·°F)]	40	0.885	0.862	0.820	0.774	0.724
	180	0.933	0.915	0.883	0.849	0.816
	250	0.958	0.944	0.913	0.882	0.845
Viscosity, Centipoise	40	3.11	3.59	4.94	6.81	9.93
	180	0.59	0.66	1.82	0.96	1.09
	250	0.37	0.40	0.47	0.55	0.59
Density, (lb/ft ³)	40	65.19	65.71	66.61	67.50	68.83
	180	62.90	63.31	64.10	64.83	65.55
	250	61.05	61.42	62.15	62.81	63.44

Composition (Concentrate)

Ethylene Glycol 96.0 volume % max.
Inhibitor Package 4.0 volume % min.

Color *Pink*
(or custom dye option)

pH:
50% Solution 9.8-10.8
30% Solution 9.6-10.6

Specific Gravity (60°F) Ethylene Glycol

96% Solution 1.125 min.
50% Solution 1.070 min.

Reserve Alkalinity

96% Solution 10.0 mL min.
50% Solution 5.0 mL min.

Flash Point Ethylene Glycol

50% Solution none

Vol. % Ethylene Glycol	Vol. % EGI-HTF	Freezing Point °F	Boiling Point °F @ 760 mm Hg
15	15.6	23.6	215
30	31.2	3.7	220
40	41.6	-2.7	223
50	52.1	-34.6	226
60	62.5	-60.0	228

Water Quality Requirements

Water used to dilute the EGI-HTF concentrate can be low-hardness, city water, or well water, although the use of deionized water is best. It is recommended that water with no more than 170 ppm hardness be used to dilute concentrate or be used as make-up water.

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