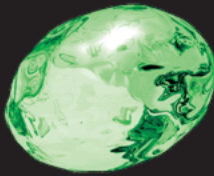
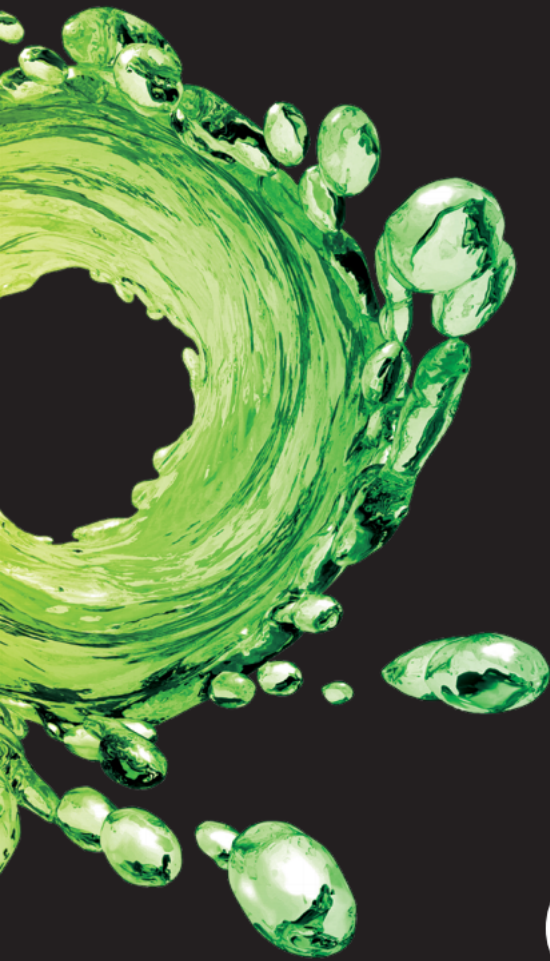


QUENCHING OILS
WATERMISCIBLE POLYMER QUENCHANTS
SALT BATHS
FEROCLEAN

淬火油
水溶性淬火介质
熔盐介质
清洗产品

QUENCHANTS

热处理淬火介质



热处理淬火介质

QUENCHANTS

Modern heat-treatment processes are forever making new demands on quenching fluids. PETROFER's extensive development programs ensure that our product technology is more than capable of meeting these new industry advances. We are constantly screening new materials for their suitability in our formulations, and our existing product range is reviewed continually to ensure that the best available technology is used.

We closely cooperate with customers to provide supporting products suitable for heat treatment process, so as to improve production efficiency, reduce energy consumption and bring benefits to customers.


现代热处理快速发展对淬火冷却介质提出新的要求。PETROFER为此而持续不断地深入研究与探索，对各种新的原材料进行试验研究，考察其作为淬火介质试用过程中的功能与效果，并比较我们已有淬火介质系列产品的各项性能，从而使最实用的先进技术得以充分融入我们的产品中。

我们与客户紧密配合，提供适合热处理过程中需要的配套产品，从而提高生产效率，降低能源消耗，为客户带来收益。

A QUENCHING OILS 淬火油

快速淬火油适用于各种低碳合金钢及碳素钢材料零件淬火冷却，高粘度淬火油适用于薄壁零件，以及翘曲和变形要求严格的一系列零件淬火冷却。常速淬火油适用于渗透性好合金含量较高材料的零件淬火冷却。

The ISORAPID quenching oil is suitable for all kinds of low carbon alloy steel and carbon steel workpiece quenching and cooling. The medium-high viscosity quenching oil is suitable for the quenching cooling of thin-walled parts and a range of parts with stringent warping and deformation requirements. Normal speed quenching oil is suitable for quenching and cooling parts with good hardenability and high alloy content.

TYPE 类别	PRODUCT 型号	APPLICATION RANGE 适用范围	VISCOSITY 40°C 40°C粘度	APPLICATION TEMPERATURE RANGE 适用温度范围
常速淬火油 Normal speed quenching oil	ISODUR 220	<ul style="list-style-type: none"> - 较低的冷却速度，取决于粘度 - 适用于合金钢淬火冷却 - Lower cooling rates, depending on viscosity - Applied to quenching and cooling of alloy steels. 	19 mm ² /s	50-80°C
	ISODUR 350		38mm ² /s	60-90°C
	MARQUENCH 600		58mm ² /s	60-150°C
	MARQUENCH 1400		260mm ² /s	100-180°C (max.200°C)
低粘度超速 淬火油 Low viscosity accelerated quenching oil	ISOMAX 150/170	<ul style="list-style-type: none"> - 新产品系列 - 基于最新的GTL基础油技术 - 更短蒸汽膜阶段，更高稳定性 - New series;Based on GTL base oil technology - Very short vapor film stage, high stability 	13/12mm ² /s	40-70°C
优异抗气化 能力的快速 淬火油 Excellent resistance to gasification quenching oil	ISORAPID 280	 innovating fluids	23mm ² /s	50-80°C (max.130°C)
真空淬火油 Vacuum quenching oil	VACUQUENCH B 255		28mm ² /s	30-80°C

*PETROFER GTL 技术：来自于更稳定的抗气化能力、低粘度、安全、经济、高闪点基础油。

*PETROFER GLT technology: based on high stability for gasification resistance, low viscosity, safety,economical and high flash point base oil.

A QUENCHING OILS 淬火油

快速淬火油适用于各种低碳合金钢及碳素钢材料零件淬火冷却，高粘度淬火油适用于薄壁零件，以及翘曲和变形要求严格的一系列零件淬火冷却。常速淬火油适用于渗透性好合金含量较高材料的零件淬火冷却。

The ISORAPID quenching oil is suitable for all kinds of low carbon alloy steel and carbon steel workpiece quenching and cooling. The high viscosity quenching oil is suitable for the quenching cooling of thin-walled parts and a range of parts with stringent warping and deformation requirements. Normal speed quenching oil is suitable for quenching and cooling parts with good hardenability and high alloy content.

TYPE	PRODUCT	APPLICATION RANGE	VISCOSITY 40°C	APPLICATION TEMPERATURE RANGE
类别	型号	适用范围	40°C粘度	适用温度范围
低粘度超速 淬火油 Low viscosity accelerated quenching oil	ISOMAX 100/169	<ul style="list-style-type: none"> - 紧固件淬火冷却 - 模锻零件调制淬火处理 - 锻造余热淬火 - 钢板弹簧、螺旋弹簧淬火冷却 - Quenching cooling for fastener - Quenching and tempering for die forging parts - Quenching for forging heat - Quenching cooling for leaf spring and spiral spring. 	12,5/14,0mm ² /s	40-70°C
快速淬火油 Accelerated quenching oil	ISORAPID 221	<ul style="list-style-type: none"> - 适用于密闭炉型 - 渗碳钢、调制钢、工具钢 - 现代热处理车间优选产品 	21 mm ² /s	50-80°C
	ISORAPID 277/ 277 HM	<ul style="list-style-type: none"> - Suitable for closed furnace - Quenching for carburizing steel, hardened and tempered steel, tool steel 	24/25mm ² /s	50-80°C (max.130°C)
	ISORAPID 455 / 459	<ul style="list-style-type: none"> - Preferred products for modern heat treatment workshops 	50/49 mm ² /s	50-100°C (max.150°C)
热 (分级) 淬火油 (Hot)graded quenching oil	MARQUENCH 722/729	<ul style="list-style-type: none"> - 减小齿轮 / 轴、球 / 滚子轴承等零件变形 	78/75mm ² /s	60-150°C (max.180°C)
	MARQUENCH 849	<ul style="list-style-type: none"> - Reduce the deformation of gear, shaft, ball bearing and roller bearing. 	156 mm ² /s	70-150°C (max.180°C)
	MARQUENCH 875		100mm ² /s	70-160°C (max.200°C)
热 (分级) 淬火油 (Hot)graded quenching oil	MARQUENCH 3500	<ul style="list-style-type: none"> - 适用于环型加热炉和井式炉密封油 - Suitable for sealing oil for annular heating furnace and pit furnace 	480mm ² /s	150-250°C (max.265°C)
真空淬火油 Vacuum quenching oil	VACUQUENCH B 244	<ul style="list-style-type: none"> - 真空设备专用淬火油 - 根据材料的淬透性进行选择 	28mm ² /s	30-70°C
	VACUQUENCH B 346	<ul style="list-style-type: none"> - Special for vacuum equipment; - According to the material hardenability to select the specific type 	37 mm ² /s	40-80°C
	VACUQUENCH 605		55mm ² /s	50-150°C

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*PETROFER GLT technology: based on high stability for gasification resistance, low viscosity, safety, economical and high flash point base oil.



WATERMISCIBLE POLYMER QUENCHANTS 水溶性淬火介质

聚合物淬火介质与水充分融合，当炽热工件浸入淬火液时，其表面会包围一层具有隔热作用的富水高浓度聚合物脱溶膜（这层膜的厚度主要取决于淬火液的浓度），当工件温度降低到淬火液温度时（常温），聚合物脱溶层会重新溶解回（水）淬火液中。据此特点，聚合物淬火介质在实际使用中带出消耗量很少，使用成本更低。

The polymer quenchant is fully integrated with water, when the hot workpiece is immersed into the quenching liquid, its surface will be surrounded by a layer of water-rich and high-concentration polymer stripping film with heat insulation (the thickness of this film mainly depends on the concentration of the quenching liquid). When the workpiece's temperature drops to the temperature of the quenching liquid (normal temperature), the polymer stripping layer will be dissolved back into the quenching liquid. Therefore, the characteristics of polymer quenchant in the actual use of is with lower consumption and cost.

FEROQUENCH

PRODUCT	APPLICATION RANGE	RECOMMENDED CONCENTRATION	QUENCHING CHARACTERISTIC
产品	适用范围	推荐浓度	淬火特性
FEROQUENCH 2000	<p>淬透性较好的合金钢材料调质工艺、大型、中型铸锻件调制热处理冷却、开放淬火槽渗碳工件淬火冷却</p> <p>Alloy steel material preparation process with good hardenability, large and medium-size casting and forging preparation heat treatment cooling, open quenching groove carburizing workpiece quenching cooling.</p>	5-20%	<p>非常短的蒸汽膜阶段，在马氏体形成区间缓慢的淬火速度，防止工件开裂（替代500m³开放式淬火油槽处理，已成功运行数十年）</p> <p>Very short vapor film stage, in the martensite formation interval slow quenching rate, prevent workpiece cracking. (Replacing 500 m³ of open oil groove quenching treatment, has been successfully operating for decades)</p>
FEROQUENCH AP-2	<p>改善低合金、合金钢的内部金相组织</p> <p>Improve the internal metallographic structure of low alloy and alloy steel.</p>	10-25%	<p>更长的蒸汽膜阶段，通过降低高温阶段冷却速度，使沸腾阶段获得相对慢的冷却速度，可以获得满意的贝氏体组织</p> <p>For a longer vapor film stage, satisfactory bainite structure can be obtained by reducing the cooling speed at the high temperature stage to obtain a slower cooling speed at the boiling stage</p>
FEROQUENCH HQ-RS	<p>适用于感应淬火和火焰淬火、碳钢和低合金钢在开放式淬火槽的淬火</p> <p>Applied to spray quenching of component after induction heating or flame heating, and quenching for carbon steel and low alloy steel in open quenching groove.</p>	5-8%	<p>因其非常短的蒸汽膜、优异的抗污染特性，可使工件获得极高硬度、杜绝软点，非常适合钢厂和精确控制淬火系统的应用，由于其兼容性，应避免交叉感染到Feroquench 2000淬火槽系统</p> <p>Due to very short vapor film stage, excellent pollution resistance, it can make workpiece to obtain high hardness, soft spots avoided, and be suitable for steel mill and precision controlled quenching systems. Due to its compatibility, cross contamination to the Feroquench 2000 quenching tank system should be avoided.</p>





WATERMISCIBLE POLYMER QUENCHANTS 水溶性淬火介质

聚合物淬火介质与水充分融合，当炽热工件浸入淬火液时，其表面会包围一层具有隔热作用的富水高浓度聚合物脱溶膜（这层膜的厚度主要取决于淬火液的浓度），当工件温度降低到淬火液温度时（常温），聚合物脱溶层会重新溶解回（水）淬火液中。据此特点，聚合物淬火介质在实际使用中带出消耗量很少，使用成本更低。

The polymer quenchant is fully integrated with water, when the hot workpiece is immersed into the quenching liquid, its surface will be surrounded by a layer of water-rich and high-concentration polymer stripping film with heat insulation (the thickness of this film mainly depends on the concentration of the quenching liquid). When the workpiece's temperature drops to the temperature of the quenching liquid (normal temperature), the polymer stripping layer will be dissolved back into the quenching liquid. Therefore, the characteristics of polymer quenchant in the actual use of is with lower consumption and cost.

AQUATENSID/AQUACOO L

PRODUCT	APPLICATION RANGE	RECOMMENDED CONCENTRATION	QUENCHING CHARACTERISTIC
产品	适用范围	推荐浓度	淬火特性
AQUATENSID BW 3 AQUATENSID BW-3-FF FRB-free*	感应加热或火焰加热后零件喷淋淬火，非合金钢（碳钢、铸件）低合金钢、合金钢开放淬火槽淬火 Spray quenching of component after induction heating or flame heating. Quenching for non-alloy steel (carbon steel, castings), low alloy steel, alloy steel open quenching groove.	3-8%	非常短的蒸汽膜阶段，在马氏体形成区间（对流阶段）缓慢的淬火速度，防止工件开裂 Very short vapor film stage, in the martensite formation interval (convection stage) slow quenching rate, prevent workpiece cracking.
AQUATENSID BW AQUATENSID BW-FF FRB-free*	感应加热或火焰加热后零件喷淋淬火，非合金钢、合金钢开放淬火槽淬火、铝合金热处理 Spray quenching of component after induction heating or flame heating. Quenching for non-alloy steel, alloy steel open quenching groove, aluminum alloy heat treatment.	5-20%	非常短的蒸汽膜阶段，在马氏体形成区间缓慢的淬火速度，防止工件开裂 Very short vapor film stage, in the martensite formation interval slow quenching rate, prevent workpiece cracking.
AQUATENSID D according to AMS 3025	航空工业铝合金以及汽车行业薄板、型材等热处理 Heat treatment of aluminum alloy in aviation industry and sheet and profile in automobile industry.	5-30%	用于铝合金固溶处理，减小变形 Solution treatment of aluminum alloy, reduce deformation
AQUACOO VSL AQUACOO VSL-FF FRB-free*	感应加热或火焰加热后零件喷淋淬火，替代淬火油在合金钢、高合金钢上应用 Spray quenching of component after induction heating or flame heating. Replace the application of quenching oil in alloy steel and high alloy steel.	5-20%	非常短的蒸汽膜阶段，在马氏体形成区间缓慢的淬火速度，防止工件开裂 Very short vapor film stage, in the martensite formation interval slow quenching rate, prevent workpiece cracking.

* FRB-free: 不含甲醛

C SALT BATHS 熔盐介质

盐浴适用于多种热处理工艺，优点：灵活性高、适用温度范围广、保温时间短。特殊盐可以用于淬火、渗碳以及炉体清洗。

Salt baths is suitable for a variety of heat treatment , the advantages are: high flexibility, wide range of temperature, short holding time. Special salts can be used for quenching, carburizing and tank cleaning.

PRODUCT	APPLICATION RANGE
产品	适用范围
HS hardening bath	盐浴用于结构钢、表面硬化钢、调制钢，以及高速钢淬火的预热阶段 Salt baths is used in structural steel, case-hardening steel, modulated steel, and high-speed steel during the preheating phase of quenching.
NEUTROSAL	盐再生处理 Salt regeneration treatment.
SINOXAL high speed steel bath	高速钢高温处理中，防止脱碳 High-speed steel in high temperature treatment, prevent decarbonization.
CARBOGEN CARBORAPID CARBOMAX carburising bath	盐稳定剂 High-speed steel in high temperature treatment, prevent decarbonization.
CARBOTECT	固体渗碳，氰化处理 Solid carburizing,cyaniding.
AS quenching salt	无亚硝酸盐和含亚硝酸盐的高温盐，用于淬火马氏体、贝氏体处理和钢件的回火，也可用于铝合金的固溶退火，依据不同的熔点选用 Nitrite-free and nitrite-containing high temperature salt, used for steel quenching, bainite treatment and tempering, can also be used for aluminum alloy solution annealing, according to different melting point .



C SALT BATHS 熔盐介质

盐浴适用于多种热处理工艺，优点：灵活性高、适用温度范围广、保温时间短。特殊盐可以用于淬火、渗碳以及炉体清洗。

Salt baths is suitable for a variety of heat treatment , the advantages are: high flexibility, wide range of temperature, short holding time. Special salts can be used for quenching, carburizing and tank cleaning.

PRODUCT	APPLICATION RANGE
产品	适用范围
GS quenching salt	用于高速钢、工具钢退火 For high-speed steel, tool steel annealing.
SFS 500-E / SFS blackening bath	盐浴氮化后，获得优良的盐雾性能及耐磨性能 After salt baths nitriding, obtain excellent properties of salt spray and wear resistance.
BLACKY NF burnishing bath	钢铁部件在温度150°C左右抛光浴中抛光，无需亚硝酸盐起作用 The steel parts are polished in a polishing bath at a temperature of around 150°C, without nitrite works.
HEAT TRANSFER SALTS	无亚硝酸盐和含亚硝酸盐物质的橡胶硫化和其他传热过程，可适用于不同熔点 Nitrite-free and nitrite-containing materials of rubber vulcanization and other heat transfer process, can be applied to different melting points.
CLEANING SALTS	有色金属表面清洗特殊盐浴配方 Special salt baths formula for non-ferrous metal surface cleaning.



D FEROCLEAN 清洗产品

清洗剂适用于热处理前清洗和后清洗，适用于加热或常温清洗设备，分类为中性清洗剂和碱性清洗剂。

Cleaner is applicable to cleaning before and after heat treatment, applicable for heating or normal temperature equipment cleaning, and classified into neutral cleaner and alkaline cleaner.

PRODUCT	APPLICATION RANGE	TYPE	CHARACTERISTIC
产品	适用范围	类型	产品特性
Feroclean N 317	<p>适用于钢、铸铁件、有色金属，以及铝，镁合金的清洗（除油、脱脂）特别适合带或不带高压的喷洗系统</p> <p>Suitable for cleaning (degreasing) steel, cast iron parts, non-ferrous metals, and aluminum and magnesium alloys, especially suitable for spray cleaning systems with or without high pressure.</p>	<p>水基型</p> <p>Water-based type</p>	<p>无盐中性清洗剂提供了极好的破乳性能，需要微过滤</p> <p>Salt free neutral cleaner provide excellent emulsification resistance performance and require microfiltration</p>
Feroclean N 402 K	<p>适用于由钢或铸铁的浸没，浸渍和喷雾应用。一些铝及有色金属也是适用的，但首先需要进行小规模试验来获取敏感度。可用于超滤</p> <p>Suitable for immersion, impregnation and spray application of steel or cast iron. Some aluminum and non-ferrous metals are also applicable, but small-scale experiments must be conducted first to obtain sensitivity, also used for ultrafiltration.</p>	<p>水基型</p> <p>Water-based type</p>	<p>在室温（20℃）下使用不会产生泡沫。不含甲醛，硅酸盐和硼</p> <p>It will not produce foam when used at room temperature (20 °C), free of formaldehyde, silicate and boron</p>



D FEROCLEAN 清洗产品

清洗剂适用于热处理前清洗和后清洗，适用于加热或常温清洗设备，分类为中性清洗剂和碱性清洗剂。

Cleaner is applicable to cleaning before and after heat treatment, applicable for heating or normal temperature equipment cleaning, and classified into neutral cleaner and alkaline cleaner.

PRODUCT	APPLICATION RANGE	TYPE	CHARACTERISTIC
产品	适用范围	类型	产品特性
Feroclean N-SF	<p>适用于钢铁件和有色金属制品的浸洗或喷淋。包括热处理加热前后的清洗可适用各种硬水</p> <p>Applied for the immersion or spraying of steel parts and nonferrous metal products, including the cleaning before and after heat treatment and can be used for various hard water.</p>	<p>水基型</p> <p>Water-based type</p>	<p>微碱性，不含磷酸盐和硝酸盐具有良好的工序间防锈性能温度55°C以上时泡沫较小</p> <p>Slightly alkaline, free of phosphate and nitrate, with good anti rust performance between processes, and small foam when the temperature is above 55°C</p>
Feroclean A118	<p>适用于清洗钢、铸铁件表面的高粘度油品和污物。既可用于浸洗也可用于喷淋清洗。也适用于清洗经过成型加工的金属零件</p> <p>Suitable for cleaning high viscosity oils and contaminants on steel and cast iron surfaces. Can be used for both dip and spray cleaning, and also for formed metal parts.</p>	<p>水基型</p> <p>Water-based type</p>	<p>含有碱性盐类助洗剂，具有良好抗乳化性能的清洗剂 推荐使用既含有清洗又含有漂洗的清洗机</p> <p>Cleaner containing alkaline salt detergents with good anti emulsification properties; Recommend using a cleaning machine that includes both cleaning and rinsing</p>
Feroclean A118 K	<p>适合于去除以钢、不锈钢和铸铁等材料制成的工件上色素污垢和研磨液等。是在A118基础上开发出的可在室温下使用的节能型新产品</p> <p>Suitable for removing pigments dirt, and grinding fluid from workpieces made of materials such as steel, stainless steel, and cast iron. It is an energy-saving product developed based on A118 that can be used at room temperature.</p>	<p>水基型</p> <p>Water-based type</p>	<p>可以在室温下进行喷涂，并且不会产生泡沫 具有抗腐蚀抗乳化的特性</p> <p>It can be sprayed at room temperature, and will not produce foam. It has corrosion resistance and emulsification resistance properties.</p>
Feroclean N 315	<p>适用于钢及铸铁件的清洗，并对清洗零件具有良好的防锈效果是特为硬水研制的产品，产品本身对油和润滑剂有良好的抗乳化性能</p> <p>Suitable for cleaning steel parts and cast iron parts with good rust prevention effect. Specially developed for hard water products, it has good anti-emulsification property to oil and lubricant.</p>	<p>水基型</p> <p>Water-based type</p>	<p>在45°C以上时进行清洗，不会产生泡沫 不含亚硝酸盐和磷酸盐</p> <p>When cleaning above 45 °C, no foam will be produced, no nitrite and phosphate</p>

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