ARCOR™

Brevet HEF

Surface treatment improving wear and corrosion resistance

In a strong position because of more than 50 years' experience in the area of thermochemical treatments, the HEF Group is the world leader in the area of liquid ionic Nitrocarburizing. THE ARCOR™ belongs to this family and is a treatment involving thermo-chemical diffusion in salt baths with a passivation and a finishing treatment.

The various treatments patented and marketed by the HEF Group under the names ARCOR®, TENIFER®, TUFFTRIDE®, MELONITE®, NUTRIDE® or QPQ® are grouped together under the family name CLIN which stands for Controlled Liquid Ionic Nitrocarburizing.

Those treatments allow combining corrosion, wear and tiredness resistance properties of steels and cast-irons. Corrosion resistance can exceed 700 hours in salt spray on simple parts and can commonly reach 400 hours in salt spray on more complex parts.

CLIN™ treatments, such as ARCOR™, offer in addition much more advantages:

Good friction properties	Dry tribological properties of the porous layer Improvement of surface chargeability of oil
Excellent seizure resistance	Ceramic properties of the nitride layer which prevents adhesion by sticking between mechanical parts
Surface mechanical resistance	Combination layer integrated in the material Gradient of hardness from the surface
Excellent corrosion resistance	Combination layer, oxidized and impregnated, perfectly sealed
Hot stability	Maximum permitted use temperature greater than 500°C
No re-machining	No deformation but a reswelling corresponding to 1/3rd of the thickness of the combination layer
Cosmetic appearance	Combination layer, oxidized and impregnated, offering a uniform black appearance and dry-to-the-touch feel

hef durferrit

HEF Groupe has a worldwide presence to answer all your needs, through its subsidiaries **HEF Durferrit** or **Techniques Surfaces**.

You can locate our units on **www.hef.fr** or contact us by e-mail **sales.world@hef.fr**

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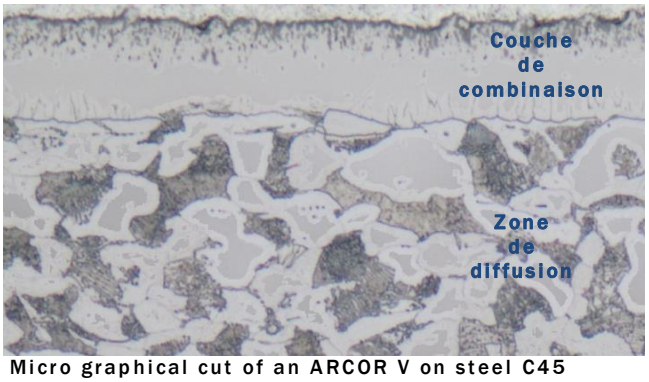
Edition March 2014 – This edition replaces all earlier edition which are herewith rendered obsolete

The CLIN treatments together, and so the ARCOR, with the associated industrial equipment, have easily adapted themselves to the various environmental and technical constraints and their applications are being developed all the time in our industry.

These treatments concern mainly ferrous alloys (steel, cast iron, stainless steel, etc.) and are carried out between 500°C and 630°C.

The aim of CLIN treatments is, from a heterogeneous surface reaction, to transfer into the solid metal alloy nitrogen and carbon atoms contained in the molten salt.

Following the transfer of the nitrogen into the steel, 2 very distinct phases are obtained::



Micro graphical cut of an ARCOR V on steel C45

-A layer of iron nitrides (basically ε-Epsilon type but also γ'-Gamma prime type) and nitrides of alloy elements called "combination layer", which has the particular feature of being surface porous,

-A diffusion zone below the combination layer, in which nitrogen is present in solid form between the iron (or alloy element) atoms.

The adjustment of the treatment parameters offers a very wide use range from the point of view of mechanical characteristics, tribological properties or corrosion performance.

	ARCOR V	ARCOR N	ARCOR DT	ARCOR L	ARCOR CS
Friction properties	+ + +	+ +	+ +	+	+ + +
Wear resistance	+ + +	+ + +	+ + +	+ + +	+ + +
Seizure resistance	+ + +	+ + +	+ + +	+ + +	+ + +
Corrosion resistance	+ + +	+ + +	+ +	+ +	+ + + +
Mechanical bending resistance	+	+ + +	+	+	+

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