



TECNADIS METALCOAT EASY TO CLEAN

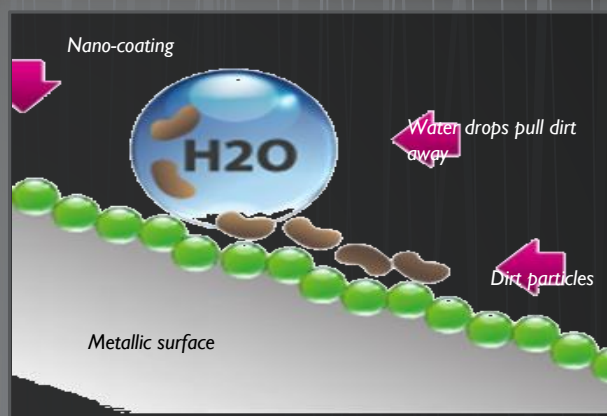
Non-stick coating that protects the surface where it is applied from scratches, impacts and from corrosion



WHAT IS IT?

TECNADIS METALCOAT “Easy-To-Clean” is a highly-durable coating which protects the surface where it is applied at the same time that provides non-stick properties.

It is based on a **dispersion of ceramic nanoparticles** which avoids pollutant particles and food leftovers from sticking to the surface, thus simplifying cleaning tasks while **protects it from corrosion, impacts and scratching**, also reducing cleaning time and frequencies and elongating material lifetime.



HOW DOES IT WORK?

The coating **TECNADIS METALCOAT “Easy-To-Clean”** provides a highly-durable non-stick effect through the **creation of a thin transparent film which acts as a barrier, preventing the dirt to get adhered to the surface**, thus making the surface “easy-cleaning” and protecting it from corrosion, impacts and scratches.

WHERE CAN IT BE APPLIED?

TECNADIS METALCOAT “Easy-To-Clean” can be easily applied onto almost any **metallic surface** such as stainless steels, carbon steels, iron, aluminium, copper, and bronze, among others. **No chemical or physical surface preparation is required previous to the application of the coating** beyond a simple cleaning or degreasing.

In addition, **TECNADIS METALCOAT “Easy-To-Clean” coating can be applied onto enamelled metals, ceramics, glass, and even onto some kind of plastics.**

BENEFITS

TRANSPARENT COATING THAT RESPECTS NATURAL COLOUR OF THE SUBSTRATE AND ITS SUPERFICIAL STRUCTURE

STAINLESS STEEL



METALCOAT

POWERFUL NON-STICK EFFECT THAT PREVENTS POLLUTANT PARTICLES FROM GETTING ADHERED TO THE SURFACE, THUS PROVIDING EASY-CLEANING EFFECT THANKS TO ITS HYDROPHOBIC AND OLEOPHOBIC PROPERTIES

Easy Cleaning evaluated through a modified version of the European FAN Test (Facile á Nettoyer or Easy to Clean): 7 food stains are calcined on a stainless steel plate during 30 minutes at 300°C.

STEP 1: Food stains cooked at 300°C during 30 minutes



Ketchup, milk, egg, olive oil, gravy, jam and lemon juice.

STEP 2: Surface cleaning by using a wet cloth



STEP 3: Cleaning evaluation

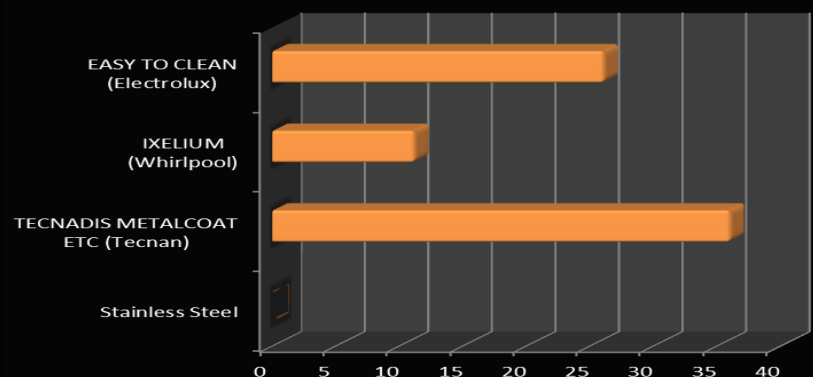


Thanks to the treatment all the stains are easily removed.

Cleaning effect is evaluated for each stain by using a score system where the maximum punctuation is 42 (7 stains):

SCORE TABLE		
NOT ELIMINATED		0
BLUE SCOURER	NOT ELIMINATED	1
	ELIMINATED	2
WET CLOTH	NOT ELIMINATED	3
	ELIMINATED	4
FALLS DOWN	NOT ELIMINATED	5
	ELIMINATED	6

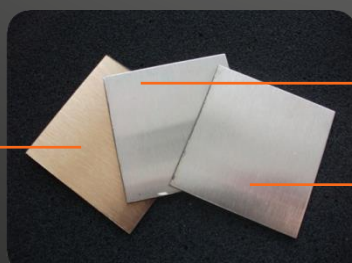
FAN Test Results at 300°C



IN PRELIMINAR RESULTS THE COATING TECNADIS METALCOAT “Easy-To-Clean” HAS DEMONSTRATED A CLEAR SUPERIORITY IN TERMS OF NON-STICKING PERFORMANCE WITH RESPECT TO THE SOLUTIONS CURRENTLY COMMERCIALISED BY BIG COMPANIES IN THE APPLIANCES SECTOR SUCH AS WHIRLPOOL OR ELECTROLUX.

HIGH HEAT SHOCK RESISTANCE AT 350°C

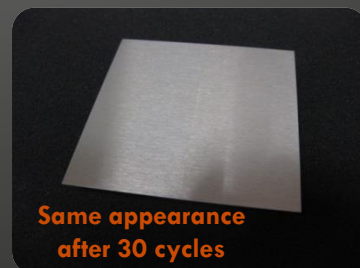
Non-coated steel



METALCOAT coated steel

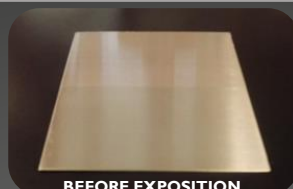
Reference steel

Same appearance after 30 cycles



DELAYS CORROSION APPEARANCE IN METALS, PROTECTING THEM FROM CORROSIVE AGENTS SUCH AS MARINE ENVIRONMENT AND WEATHERING

Corrosion protection* evaluated through saline chamber testing according to Regulation ASMTD117 (5%w saline concentration, continuous saline mist flow, pH around 7 and constant temperature of 35°C)



BEFORE EXPOSITION



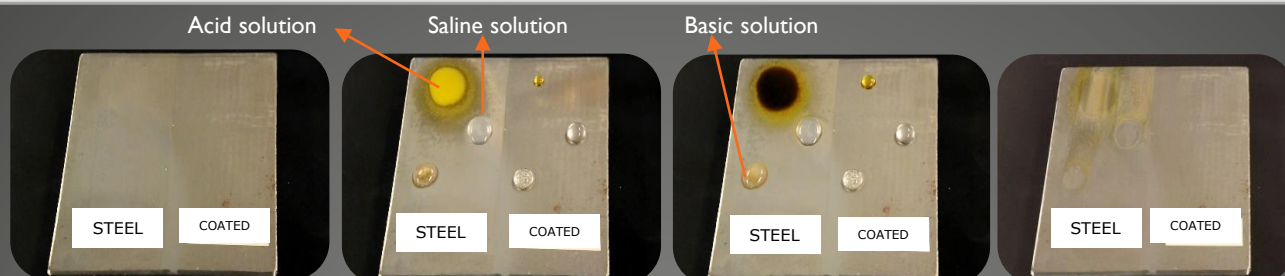
AFTER 120 h OF EXPOSITION



AFTER 240 h OF EXPOSITION

*Due to the fact that AISI 304 is a corrosion-resistant material, and in order to speed up the corrosion test and process, the sheets were subjected to a previous thermal shock.

GOOD RESISTANCE AND PROTECTION FROM CHEMICAL AGENTS OF BOTH ACID AND BASIC NATURE, AS WELL AS FROM SOLVENTS



HIGH HARDNESS AND GOOD RESISTANCE TO SCRATCHING

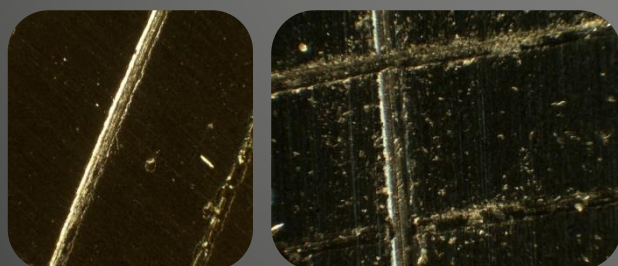
	STAINLESS STEEL	Tecnadis METALCOAT ETC
4H Pencil	Low scratch	OK
6H Pencil	Scratch	OK
8H Pencil	Scratch	OK
9H Pencil	Scratch	OK
Blue 3M Sponge*	OK	OK
Copper Sponge*	Scratch	Low scratch
Green 3M Sponge*	Scratch	Scratch

* Load 50g/cm²

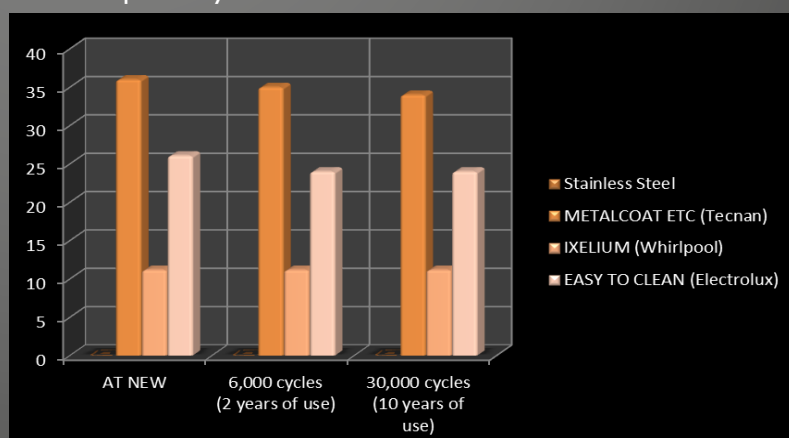
ACCORDING TO THIS PRELIMINARY TESTING, TECNADIS METALCOAT ETC IS THE HARDEST COATING IN THE MARKET AND THE MOST RESISTANT TO SCRATCHES, ALSO SUPERIOR TO THOSE COMMERCIALISED BY BIG BRANDS SUCH AS WHIRLPOOL OR ELECTROLUX.

GOOD ADHESION AND LONG-LASTING EFFECT

Adhesion of the coating to the substrate has been checked by cutting it according to Regulations ISO2409_2007 and ASTM D3002. As a result, qualification 0/5B was obtained respectively due to null detachment.



For household appliances, after evaluating durability by means of accelerated wear test and simulating real use conditions, it is concluded that the non-stick properties are maintained for 10 years.



MEETS APPLICABLE LAW ON MATERIALS TO BE IN CONTACT WITH FOOD ACCORDING TO DIRECTIVE 2005/31/CE, REGULATION 1935/2004 AND US. FDA (CPG 7117.06 & 7117.07)

EASY TO APPLY. TECNADIS METALCOAT “Easy-To-Clean” CAN BE APPLIED THROUGH COMMON COATING OR PAINTING TECHNIQUES SUCH AS AIR-FORCED-SPRAYING OR DIP-COATING, DEPENDING ON THE SIZE AND MORPHOLOGY OF THE PIECE(S) TO BE TREATED

INDUSTRIAL APPLICATION

The application of TECNADIS METALCOAT "Easy-To-Clean" in industrial facilities **considerably simplifies the cleaning processes** that usually require generous consumption of time, water, detergents and human resources, **reducing cleaning time, frequencies and resources, and also eliminating the use of decaling agents and physical abrasion.** Thus, the industrial application of TECNADIS METALCOAT "Easy-To-Clean" can pose a **significant increase in the production capacity.**

In addition, it **reduces fouling and inlaid in tubes and channels**, reducing extra pumping and additional thermal requirements as consequence of them.

Other of the main advantages of TECNADIS METALCOAT "Easy-To-Clean" is that **delays corrosion appearance, elongating the lifetime of equipment and lines** where it has been applied.

Finally, **TECNADIS METALCOAT "Easy-To-Clean" can be quickly and easily applied onto already-existing-facilities** since not special surface preparation is required.

CASES OF INDUSTRIAL SUCCESS

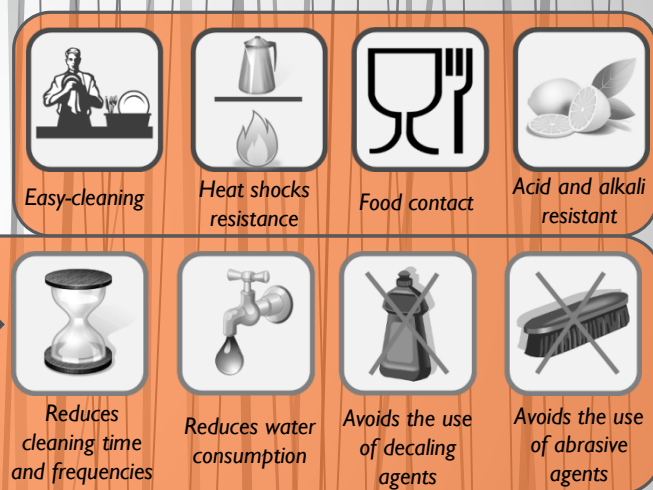
Although its use is not limited to the industrial sectors listed below due to its huge versatility, TECNADIS METALCOAT "Easy-To-Clean" has been already introduced in markets such as: home appliances, industrial kitchens and caterings, cookware and kitchenware, bakeries, pastry and confectionery industries, agrifood sector, petrochemical companies, industrial rollers for paper and cardboard production, and others.

TECNADIS METALCOAT PRODUCTS RANGE

The range TECNADIS METALCOAT consists of three products that can be used separately or in different combinations to obtain the best performance-price ratio for each application:

- **METALCOAT BASE:** It provides protection against scratches, impacts and corrosion, as well as hydrophobic and oleophobic properties. Approximate yield: 45-55 ml/m².
- **METALCOAT PLUS:** METALCOAT BASE with improved non-stick performance. Approximate yield: 45-55 ml/m².
- **METALCOAT ENHANCER:** Top coat to be applied onto either METALCOAT BASE or METALCOAT PLUS to enhance their non-stick performance. Approximate yield: 60-70 ml/m².

To select the most suitable product or combination of them for your specific case or application, please contact TECNAN. We will advise you without any obligation.



TECNOLOGÍA NAVARRA DE NANOPRODUCTOS S.L.



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