

# ECOPHOR B/637

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## 1. IDENTIFICATION

**Product name:** ECOPHOR B/637  
**Kind of Product:** metal pre-treatment (organic phosphating) before painting  
**Product code:** ECOB637...

## 2. MAIN FEATURES, PROPERTIES AND USE

ECOPHOR B/637 is a one step process developed for cleaning, degreasing and phosphating of metal surface before painting.

**It works at room temperature, without any rinsing and any creation of waste water or solid sludge or mud to be treated or disposed.**

ECOPHOR B/637 is a pre-treatment system made by an organic polymer which contains phosphating groups dissolved in a particular organic solvent mixture.

The action made by the product can be resumed as follow:

- 1) cleaning and degreasing: the oily contaminants are chemically removed from the surface
- 2) the phosphoric acid etches the metal surface: creation of the first chemical bridge
- 3) during the fluids drying off: cross-linking of a special organic-inorganic poly-phosphate (1-2 microns) that includes into itself part of the oily contaminants and that coats all the surface treated.

The polymeric film created by ECOPHOR B/637 process guarantees a valid temporary protection against flash rust and corrosion allowing the storage of not painted pieces for a period of four-five months in a ware house or for few days out side.

ECOPHOR B/637 works at room temperature, in one step, without rinsing and in a very easy way, in cheap and compact plant. Additional energetic costs of traditional multi steps pre-treatment plant are erased.

No in-site analysis is required. CHEMTEC directly or through local distributor will collect a sample every 3 months which will be analysed free of charge for the customer.

ECOPHOR B/637 works by dip or by flow-coat spray without creation of mist.

ECOPHOR B/637 as it holds inside the polymeric film part of oily contaminants, does not create solid waste to dispose, typical problem of traditional water based degreasing and phosphating plant. So only addition of material due to the consumptions is required and the life of the chemicals is quite unlimited.

ECOPHOR B/637 can be used for simultaneous treatment of: iron, steel, cast iron, galvanized, stainless steel, aluminium and its alloys, while on metal surface like zamak, and aluminium with high silicium quantities, compatibility problems may arise. Preliminary tests must be always carried out.

ECOPHOR B/637 is compatible with all painting products (exception made for e-coat), one or two components, water or solvent based and with powder coating. Anyway, according to the large amount of different kind of paints present in the market, trials and preliminary tests are always recommended.

ECOPHOR B/637 is not classified as flammable material since it has a flash point higher than 61°C.

ECOPHOR B/637 does not contain any toxic, harmful or cancer producing substances: see MSDS for additional information.

A dry off oven (even running at low temperature) is highly recommended in order to allow the drying off of the organic fluids: the product can dry off even at room temperature but it takes a long time (about 30/40 minutes @40°C).

Within the ECOPHOR product range, ECOPHOR B/637 is recommended when it is not possible to dry off parts treated at temperature higher then 70°C or more.

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## 3. PHYSICAL CHEMICAL CHARACTERISTICS

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<b>Physical state:</b>	liquid
<b>Aspect:</b>	Yellowish transparent
<b>Odour:</b>	Typical
<b>Viscosity:</b>	45 - 60" C.F: 2 at 20° C
<b>Specific weight:</b>	0.890 ± 0.050 kg/l at 20° C
<b>Vapours specific weight:</b>	> 1 (air = 1)
<b>pH:</b>	3 – 4.5
<b>Flash point:</b>	> 61° C ( method ASTM D 93/A)
<b>Solubility in water:</b>	polymer insoluble, organic fluids limitedly soluble
<b>Stability:</b>	stable under normal storage and use condition.
<b>Storage:</b>	Keep at temperatures between 5 and 40°C in its original packing perfectly sealed, far from heat sources, free flame, sparks

## 4. APPLICATION DATA

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<b>Product -preparation:</b>	the Product is supplied as ready to use. It could be necessary to use FLUID A/447 together with fresh ECOPHOR B/637 for topping up the level for replacing the product used (generally in 1:1 ratio)
<b>Application way:</b>	static or in-line dip plant; flow coating spray plant (0.2-0-3 bar, max 0.5)
<b>Running temperature:</b>	room temperature
<b>Running time:</b>	treatment time: 60 - 120 seconds according to the shape of the pieces and to the kind and quantity of oily contaminants. draining time: 4 - 6 minutes drying time: 5 - 8 minutes at 100 – 120°C or for longer time at lower temperature (for instance at 70°C drying off time is between 15 and 20 minutes). Always provide a strong air ventilation i drying off oven. These are general data: the dripping off and the drying time in the oven can change according to the shape of the pieces, to the temperature and air circulating.
<b>General output :</b>	20-30 mq/l. General data. The output can change according to the shape of the pieces and to the kind of application.
<b>Warning:</b>	hang the pieces in order to avoid the presence of accumulation area (pocket) before drying and lost of Product (drag out) or over thickness.
<b>Analithycal control:</b>	the System does not require analytical control made by operators. Our laboratory makes instrumental checks every three months or upon requests in order to control the oily quantity, and the condition of the Product, indicating the way of re-filling and the actions suggested for the correct maintenance of the chemicals.

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## 5. PLANT INSTRUCTIONS

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It is very important to spray the product with the lowest possible pressure: 0.25 – 0.40 bar are the recommended value, 0.5 bar is the limit: never exceed this value.

In spray installation the atomization of the product sprayed must always be avoided as well as the mist creation into the tunnel

The specific features of the plant can change every time according to the customer's requests.

Following we supply some indication that are necessary for a right plant working.

### - MATERIALS

The tank and all the parts that are in contact with the Product must be made of Stain less steel AISI 304.

### - TANK

For dip plant the tank containing the Product must be provided with a free board very high of at least 80 - 100 cm. This in order to avoid that the solvent vapours, heavier than air, disperse in the working area, creating danger and increase of smell and lost of Product.

### - ASPIRATION

The plant must be provided with suitable aspiration in order to avoid disperse of vapours in the working area.

### - FILTER GROUP

It is recommended to install a filter group with a pump. The filter group contains a bag of woven - not woven in polypropylene that keep the solid impurities which were on the pieces and let the solution in the tank clean.

In the dip tank, the mechanical action of Product on the pieces due to the movement of the solution guarantees a better cleaning action.

The hydraulic connection between the filter group and the tank are generally made as follows: aspiration of the liquid at the bottom of the tank on the entrance side; the filtered liquid comes back into the tank under the free board counter-current to the way of conveyor of the air.

The filter group must be in an accessible area and not in a hole or where ever there could be accumulation of vapours' Product.

The filter group is supplied by PAI-KOR at very competitive price. Anyway, PAI-KOR can supply the drawing of the filter group for who decides to built it by himself.

### - DOUBLE TANK

It is suggested to put a double extractive tank, in order to allow the recovery of the fallen pieces and the cleaning of the tank.

### - CONTAINING TANK

As note the present provision impose the presence of a back-tank suitable to contain the liquid eventually poured.

### - DRAINING

In order to reduce the Product consumption it suggest to let the Product recovered during the draining time fall into the tank.

### - TREATMENT SECTION

In order to reduce the consumption and to avoid loss of Product in the working area, it is recommended to put one door between the different part of the plant (entrance-treatment-blow off and draining, drying) with closing time or flexible door or suitable aspiration system that let the Product not disperse in the working area.

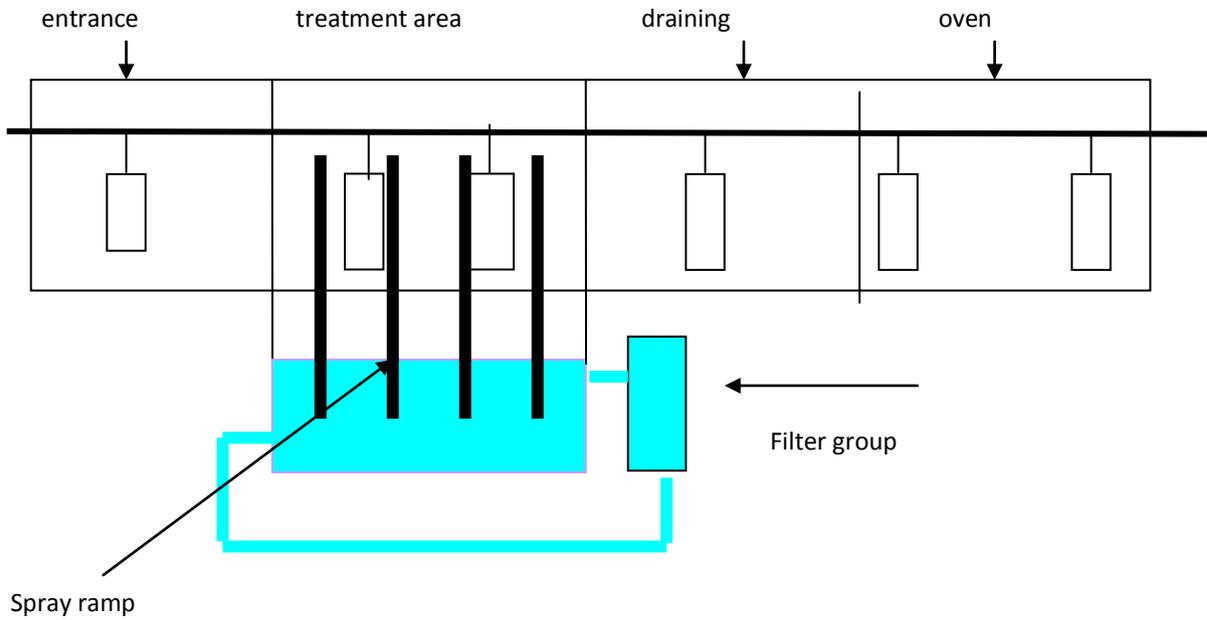
Following we give scheme of dip static plant and in line spray plant

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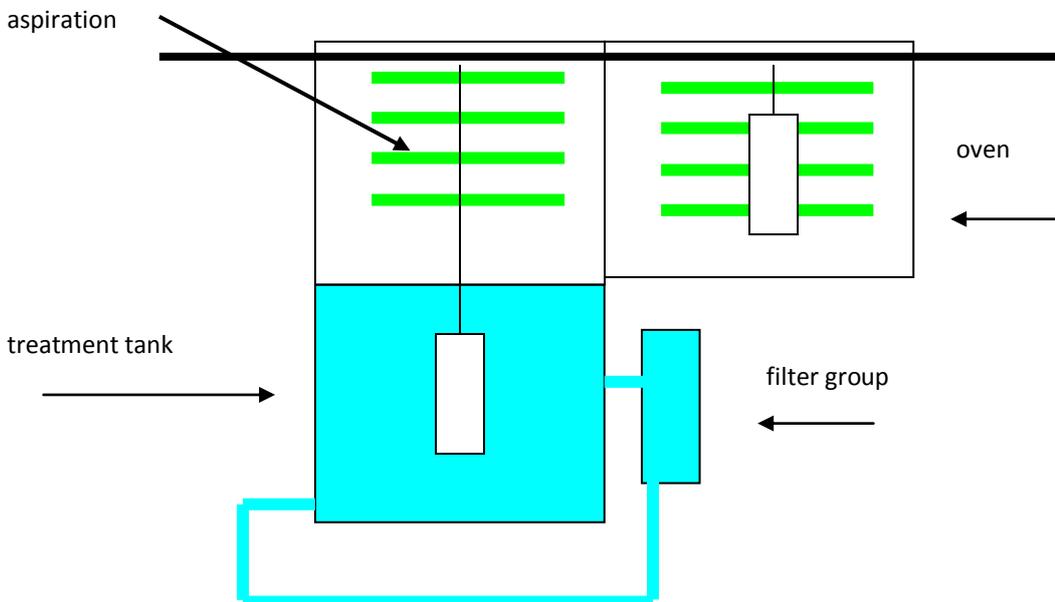
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## 5. PLANT INSTRUCTIONS

### SCHEME OF SPRAY PLANT



### SCHEME OF STATIC DIP PLANT



### ECOJET MODULE

#### ECOJET MODULE

For discontinuous production in short area, we suggest to use the ECOJET MODULE a static very compact plant, with a very limited cost, that can be developed for manual-translation or fully automatic plant, with mobile spray ramp, for spray of the chemicals and draining in the same section. See specific documents for further information.

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## 6. ENVIRONMENTAL IMPACT

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### WATER

Water is not used in the system and so there are not any water pollution.

### GROUND / SLUDGE

There are not any creation of reaction's sludge; no solid waste to dump, except for the impurities present on the surfaces treated

### ATMOSPHERE

ECOPHOR A/447 does not contain solvent or any teratogenic, cancer creating or mutagenic substances, chlorinated solvents, CFC (Chlorine-Fluorine-Carbons), substances with depressive power for stratospheric ozone

## 6. WARNING AND LIMITS

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**Pickling:** ECOPHOR B/637 can not remove rust or any oxides on the surface. Therefore it can not be used as pickling or de-scaling product or to treat parts with heavy rust or surface that requires removal of oxides. This kind of contaminants must be chemically or mechanically removed before ECOPHOR B/637 application. However, light rust spot can be accepted. Preliminary test must be always carried out.

**Oily contaminants limit:** if the quantity of oil present on the metal surface to be treated is higher than 1.5 gr/m<sup>2</sup> there is risk that the product becomes saturated by the oil, losing its degreasing capacity. In this case it is recommended a preliminary degreasing system. It is reminded that the 1.5 gr of oil per m<sup>2</sup> is by far higher than quantity of oil present on normal cold rolled steel.

**Compatibility with oil and other substances:** ECOPHOR B/637 can not remove substances like silicones, stearates, paraffins, palmitates, wax or grease with high melting point. If parts with these contaminants should be treated, it is recommended to carry out a preliminary mechanical or chemical preparation of the surface. Specific preliminary tests must be always carried out.

Any contact between water, alkaline or acid material and ECOPHOR B/637 must be avoided.

## 7. PACKING

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ECOPHOR B/637 is supplied in polyethylene high density 30 or 200 lt barrels or in 1.000 litres IBC

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The information correspond to our current knowledge on the subject. It is offered solely to provide possible suggestions for your own experimentations. It is not, however, intended to substitute for any testing you may need to conduct to determine for yourself the suitability of products for your particular purpose. These information may be subject to revision as new knowledge/experience becomes available. Since we cannot anticipate all variations in actual end-use conditions, we makes no warranties and assumes no liability in connection with any use of this information. Our Technical Service should be contacted to learn more about product application opportunities.

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