ISOPOL HR 140

ELECTROPOLISHING PROCESS

1. DESCRIPTION

ISOPOL HR 140 is an Electropolishing process largely used for the electrolytic deburring and polishing of V2A and V4A stainless steel as well as other austenitic steels.

Low-alloy steels and carbon steels can also be processed using this system, although the resultant degree of polishing and deburring will vary.

The polish provided by this system is superior to that of any other comparable processes.

Simple to use with low sludging, it is recommended that 20 - 50 % of the volume is replaced with new electrolyte at regular intervals.

2. SOLUTION MAKE – UP

a) Initial Bath Per 100 L

ISOPOL HR 140 Electrolyte	99.6 litres (s.g.: 1.66)
ISOPOL Defoamer	0.4 litres

3. WORKING ENVIRONMENT

Temperature	55 – 65 o C (70 o C for short periods)
Voltage	10 – 20 v D.C
Anode current density	5 – 20 A/dm2
Length of exposure	5 – 20 minute
Working solution (specific gravity)	1.6 – 1.66 according to the mineral acid mix recommended

Head Office :
Kompleks Pergudangan Meiko Abadi B 17-19, Ds. Wedi, Kec. Gedangan – Sidoarjo, East Java, Indonesia
Telp. (031) 8014717, 8014718, 8015320; Fax. (031) 8014534, E-mail : sca_sda@yahoo.co.id

Branch Office :
Jl. Agung Niaga VI Blok G 6 No. 46, Sunter Agung Podomoro – Jakarta, Indonesia
Telp. (021) 6400876, 6400877; Fax. (021) 6400833, E-mail : scajkt@live.com

4. REQUIRED EQUIPMENT

a) Tank material — Steel tanks with lead or plastic lining. Plastic tank can be use for smaller volumes. Please contact our technical department.

b) Heating — The electrolyte can be heated either directly or indirectly (preffered) if direct heating is employed, provision must be made for thorough agitation to prevent local overheating of the bath heaters. Satisfactory bath movement can be achieved by using small mechanical agitators.

Bath heaters should be made of teflon-coated stainless steel or porcelain.

c) Cathode material — The process is anodic, i.e. the components to be polished are connected to the anode. The cathodes used are stainless steel sheets attached to the cathode bars (Nickel-plated Copper) with copper brackets outside the electrolyte.

d) Agitation — Gentle air injection resp. mechanical, device (S)
(2 – 3 m/minute) must be provided.

e) Filtration — Not required.

f) Racks — Because of the high current densities involved in electropolishing, good contact is absolutely essential. Burning at the contact points can quickly occur dependent on contact and current density.

Racks should be made of copper with copper or titanium clamps. As titanium clamps can attain very high temperatures, the electrolyte may be affected if local overheating becomes excessive. Please pay close attention to cross-sections.

g) Material removal — For standard stainless steels, material removal is approximately 1 – 1.5 my/minute at a current density of 10 A/dm2.

h) Bath load — A bath load of 1 A/litre must never be exceeded. A bath load of 0.5 – 0.7 A/litre is considered average.

Head Office :
Kompleks Pergudangan Meiko Abadi B 17-19, Ds. Wedi, Kec. Gedangan – Sidoarjo, East Java, Indonesia
Telp. (031) 8014717, 8014718, 8015320; Fax. (031) 8014534, E-mail : sca_sda@yahoo.co.id

Branch Office :
Jl. Agung Niaga VI Blok G 6 No. 46, Sunter Agung Podomoro – Jakarta, Indonesia
Telp. (021) 6400876, 6400877; Fax. (021) 6400833, E-mail : scajkt@live.com

i) Cooling — Some form of cooling must be provided if the bath is used without interruption. Temperatures above 70 o C can destroy the electrolyte.

j) Consumption — Consumption of ISOPOL HR 140 is around 20 – 30 kg per 10 k Ah. Please ensure that used electrolyte on polished components and racks is not allowed to return to the bath. Allowing such electrolyte to drip back into the tanks is inadvisable as this solution is saturated.

5. ISOPOL HR 140 DEFOAMER

A layer of foam may form on the surface of the bath according to working conditions (High temperatures as well as high A/litre loads).

If this foam is considered undesirable (adhering to components on removal from the bath), we recommend the addition of ISOPOL HR 140 Defoamer. To prevent excess amounts, the defoamer should be applied to the surface of the bath using a spray bottle.

Regular, gentle application will prevent the formation of layer of foam.

6. PRETREATMENT

For perfect, clean polishing results, all components must be clean and, most importantly, free of grease prior to being placed in the bath.

If this precaution is not taken, polishing will be inconsistent. Additionally, residues collecting on the surface of the bath will adhere to components when the latter are lifted out of the bath. These residues are difficult to remove.

The ISOPOL HR 140 process features a very long solution life. Fresh baths are normally unnecessary; it is advisable to replace 20 – 50 % of the electrolyte with fresh solution at regular intervals.

Head Office :
Kompleks Pergudangan Meiko Abadi B 17-19, Ds. Wedi, Kec. Gedangan – Sidoarjo, East Java, Indonesia
Telp. (031) 8014717, 8014718, 8015320; Fax. (031) 8014534, E-mail : sca_sda@yahoo.co.id

Branch Office :
Jl. Agung Niaga VI Blok G 6 No. 46, Sunter Agung Podomoro – Jakarta, Indonesia
Telp. (021) 6400876, 6400877; Fax. (021) 6400833, E-mail : scajkt@live.com

7. WASTE WATER

All waste water must be treated in line with ruling legal provisions, prior to disposal in the drainage systems. Water used for rinsing purposes can also be used to neutralize alkali solutions, however.

8. SAFETY PRECAUTIONS

Protective goggles, a rubber apron and gloves must be worn when mixing the electrolyte or working with the bath

An air extraction system must be fitted when the equipment is installed. Due to the high current densities used, acidic aerosols must be expected.

Above instructions and informations are the result of intensive testing and shop experience. The are for your information, only.

Our guarantee extends to the continuous quality of our products and not their usage in the field, a factor which is beyond the control of a supplier.

Head Office :
Kompleks Pergudangan Meiko Abadi B 17-19, Ds. Wedi, Kec. Gedangan – Sidoarjo, East Java, Indonesia
Telp. (031) 8014717, 8014718, 8015320; Fax. (031) 8014534, E-mail : sca_sda@yahoo.co.id

Branch Office :
Jl. Agung Niaga VI Blok G 6 No. 46, Sunter Agung Podomoro – Jakarta, Indonesia
Telp. (021) 6400876, 6400877; Fax. (021) 6400833, E-mail : scajkt@live.com