

# **SAPIFROST**

## **POWDER FOR ACID ETCHING**

**TECHNICAL DATA SHEET**

## 1. IDENTIFICATION OF THE PRODUCT AND COMPANY

<b>Name of the product:</b>	Sapifrost
<b>Use:</b>	Chemical powder for glass acid etching
<b>Producer:</b>	Decofrost SA de CV San Andres Atoto 165-D Col. San Esteban Naucalpan de Juarez Edo de Mexico, CP 53550 Mexico
<b>Retailer:</b>	Sapi Impianti srl Z.I. Loc. Il Piano 53031 Casole d'Elsa (SI) Italia

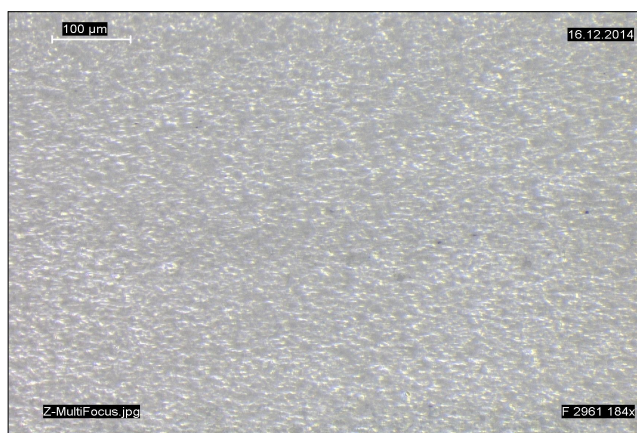
## 2. CHARACTERISTICS OF THE PRODUCT

SAPIFROST is a powder created by a mixture of elements milled and used for the acid etching of hollow glass.

The acid etching is a chemical process of opacification of hollow glass.

The acid etching done with SAPIFROST powder does not alter the characteristics of resistance of the glass itself.

The result obtained with SAPIFROST is an excellent result, with a velvety surface and the structure of the glass that remains extremely uniform (see microscope image below).



**Specification :** Main component: Ammonium bifluoride

**Physical properties:**

Density

Status

Melting point

Solubility in water...

**Appearance:** White powder

**Identification:** UN: 2923 / CAS: 1341-49-7 / CLASS: 8, 6.1

**Purity:** 70-80%

**Working density:** 1.36/1.38 kg/lt

**Etching time:** 10/15 secondi

### 3. PACKAGING



The bag containing the SAPIFROST is specifically designed to contain chemical compounds in powder and is approved by DecoFrost SA de C.V. to contain and transport the material by road, by sea, by rail and intermodal.

The filling of the bag occurs in a semi-automatic mode and the heat sealing protects the contents from humidity. A small amount of air is left inside the bag to prevent leakage of powder when opening the bag ..

NOTE: Storage of SAPI FROST must take place in a covered and dry place, away from direct sources of heat and humidity.

DecoFrost S.A. de C.V. owns the approval codes of packaging.

#### Labelling:

<b>SAPIFROST</b> POWDER FOR ACID ETCHING		←	<b>NAME OF THE PRODUCT</b>
 	<p><b>DESCRIPTION:</b> (EN) SUBSTANCE FOR THE GLASS ETCHING (ES) SUSTANCIA PARA OPACAR EL VIDRIO (IT) SOSTANZA PER OPACIZZARE IL VETRO</p> <p><b>CONTAINS:</b> CAS/EINECS 1341-49-7 ECC 215-676-4</p>	←	<b>HAZARD CLASSES 6,8 DESCRIPTION OF THE PRODUCT</b>
<b>UN 2923</b>		←	<b>NUMBER UN</b>
<p><b>R23/24/25:</b> (EN) Toxic by inhalation, in contact with skin and if swallowed (ES) Tóxico por inhalación, por ingestión y en contacto con la piel. (IT) Tossico per inalazione, ingestione e contatto con la pelle.</p> <p><b>S26:</b> (EN) In case of contact with eyes, rinse immediately with plenty of water and seek medical advice (ES) En caso de contacto con los ojos, lávase inmediata y abundantemente con agua y acúdase a un médico. (IT) In caso di contatto con gli occhi, lavare immediatamente e abbondantemente con acqua e consultare uno specialista.</p>	<p><b>R34:</b> (EN) Causes burns. (ES) Provoca quemaduras. (IT) Provoca ustioni.</p> <p><b>S37:</b> (EN) Wear suitable gloves (ES) Úsense guantes adecuados. (IT) Indossare guanti adeguati.</p>	←	<b>RISK (R) AND SAFETY (S) PHRASES</b>
<p>NET WEIGHT PESO NETO PESO NETTO</p>	25 KG.	←	<b>NET WEIGHT OF THE BAG</b>
<p>PRODUCER: <b>DECOFROST SA de CV</b> SAN ANDRÉS ATOTO 165-D COL. SAN ESTEBAN NAUCALPAN DE JUÁREZ EDO. DE MÉXICO, CP. 53550 MEXICO</p>	<p>SOLD BY: <b>SAPI IMPIANTI S.R.L.</b> Z.I. LOC. IL PIANO 53031 CASOLE D'ELSA SIENA - ITALY TEL. +39 0577 949 110 FAX. +39 0577 947 828 MAIL: INFO@SAPI-IMPIANTI.COM</p>	←	<b>PRODUCER AND RETAILER</b>
HECHO EN MÉXICO		←	<b>COUNTRY OF PRODUCTION</b>



## 4. PALLET LABELLING

Each pallet of SAPIFROST is labeled according to the standards of transport ADR / IMDG, on two sides.

Labelling:

# SAPIFROST

POWDER FOR ACID ETCHING

<b>UN2923</b>		
(EN) SUBSTANCE FOR THE GLASS ETCHING (ES) SUSTANCIA PARA OPACAR EL VIDRIO		
 8	<b>R23/24/25:</b> (EN) Toxic by inhalation, in contact with skin and if swallowed. (ES) Tóxico por inhalación, por ingestión y en contacto con la piel.	
 6	<b>R34:</b> (EN) Causes burns. (ES) Provoca quemaduras.	
	<b>S26:</b> (EN) In case of contact with eyes, rinse immediately with plenty of water and seek medical advice. (ES) En caso de contacto con los ojos, lávese inmediata y abundantemente con agua y acúdase a un médico.	
	<b>S37:</b> (EN) Wear suitable gloves. (ES) Úsense guantes adecuados.	
	<b>S45:</b> (EN) In case of accident or if you feel unwell seek medical advice immediately (show the label where possible) (ES) En caso de accidente o malestar, acúdase inmediatamente al médico (si es posible, muéstrele la etiqueta).	
CONTAINS: CAS/EINECS 1341-49-7 ECC 215-676-4	(EN) 40 BAGS PER 25 Kg each NET WEIGHT = 1000 Kg (ES) 40 SACOS POR 25 Kg cada PESO NETO = 1000 Kg	LOT N. .....
PRODUCER: <b>DECOFROST SA de CV</b> SAN ANDRES ATOTO 165-D COL. SAN ESTEBAN NAUCALPAN DE JUÁREZ EDO. DE MÉXICO, CP. 53550 MÉXICO	SOLD BY: <b>SAPI IMPIANTI S.R.L.</b> Z.I. LOC. IL PIANO 53031 CASOLE D'ELSA SIENA - ITALY TEL. +39 0577 949 110 FAX. +39 0577 947 828 MAIL: INFO@SAPIIMPIANTI.COM	(EN) PRODUCTION DATE (ES) FECHA PRODUCCIÓN ...../...../.....

← **NAME OF THE PRODUCT**

← **UN NUMBER  
DESCRIPTION OF THE PRODUCT**

← **HAZARD CLASSES 6,8  
RISK (R) AND SAFETY (S) PHRASES**

← **MATERIAL INSIDE THE PRODUCT  
QUANTITY OF BAGS IN ONE PALLET  
NET WEIGHT OF THE PALLET AND LOT NUMBER  
PRODUCER  
RETAILER  
DATE OF PRODUCTION**

## 5. FEATURES OF THE GLASS

Treatable glass with acid etching process: Soda-lime glass (containers, lighting, glass objects) and crystal

Untreatable glass with acid etching process: Borosilicate glass

For a correct execution of the acid etching is very important to get the most information possible on the glass that are going to be treated.

In order to get a good acid etching it is important to remove with the degreasing the surface treatment present on the glass articles.

NOTE: Preliminary tests of acid etching are always recommendable.

Even in the acid etching of soda lime glass may be found defects. The table below shows the causes of the most common defects:

<u>POSSIBLE DEFECT OF THE ACID ETCHING</u>	<u>POSSIBLE CAUSE</u>
No acid etching	- Non-suitable glass (borosilicate glass)
Inhomogeneous	- Insufficient agitation in the etching bath - Weak etching bath
Presence of helical shiny spots	- Glass with strings
Presence of vertical halos	- Too high concentration of fluorine
Glossy etching	- Weak etching bath - Too high concentration of fluorine - Too low concentration of water
Iridescent etching	- Cold items which, after thermal shock, create humidity inside them
Rough etching	- Too high concentration of fluorine - Immersion time too long - Too high temperature in the etching bath
White spots	- Washing too rich in salts

## 6. COMPOSITION OF ACID ETCHING BATH

SAPIFROST must be mixed with acid HCL 32% or acid HF 40%.

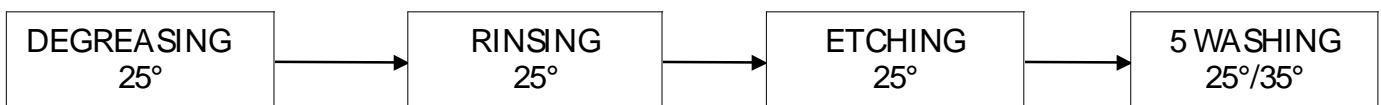
With SAPIFROST we can prepare 2 mixtures to be used according to the kind of item to be etched and the result we want to obtain:

- 1) 100 kg of SAPIFROST + 38/40 lt acid HCL = WHITE EFFECT
- 2) 100 kg of SAPIFROST + 38/40 lt acid Hf = WHITE EFFECT TO BRILLIANT

The first solution is primarily used for bottles, perfumes and cosmetics, while the second solution is preferably used for lamps

Both compositions can be used in automatic, semiautomatic and manual machines;

Entrambe le composizioni possono essere usate con macchine da satinatura automatiche, semiautomatiche e manuali; the important thing is that are respected various steps:



## 7. PREPARATION OF THE NEW ETCHING BATH

At the moment of dissolution of the powder SAPIFROST in the acid , you have endothermic reactions that cause the cooling of the etching bath solution up to temperatures even lower to - 10 ° C.

It is therefore necessary to use the following precautions for a proper heat recovery, in order to stabilize the bath temperature between 20 and 25 ° C:

- “ Prepare the initial etching bath at least 12 hours before the use and well agitate the mixture for the whole duration of heat recovery;
- “ Do not turn on the heating system inside the tank of the new etching bath at least for the first 8/12 hours;
- “ If you let decant the mixture while maintaining the thermal recovery, you need to start the agitation of the same at least 4 hours before use

NOTE: Keep stirring the mixture only with paddle stirrers or propeller. The use of pumps heats too much the etching pump, by breaking chemical bonds and prejudicing the quality of etching itself. A new etching bath often produces a very aggressive etching and so too rough. The problem is solved by working at the beginning with rejected articles for a time proportional to the volume of the bath itself.



## 8. MAINTAINING THE ACID ETCHING BATH

It is necessary to consider that the implementation of the acid etching process consumes the acid bath for two effects

- “ Reaction of the solution with the glass
- “ Dragging out of the bath, the solution from the treated articles

For these reasons it is necessary a periodic addition of the solution in order to maintain both the level and the composition of the bath.

It is preferable, both for a fact of the quality of the acid etching and for operator safety, have a mixer connected with a pump to the etching tank where it is possible to prepare and maintain under stirring the solution with the correct percentages, so to always have a solution ready to be added to the etching tank.

Once or twice a year it is recommended to empty the etching tank to clean it.

## 9. WASTE WATER TREATMENT

In the waste water are present compounds of fluorine, chlorine and ammonium. The etching plant must be equipped with a system to reduce pollutants and to adjust the maximum concentration of pollutants in accordance with the standards in force.

To neutralize the acid water after the etching process, there's need of a treatment plant with different steps and reaction to reduce acids and ammonium.

The plant we suggest includes different tank, a filter-press and stripping tower for ammonium.

