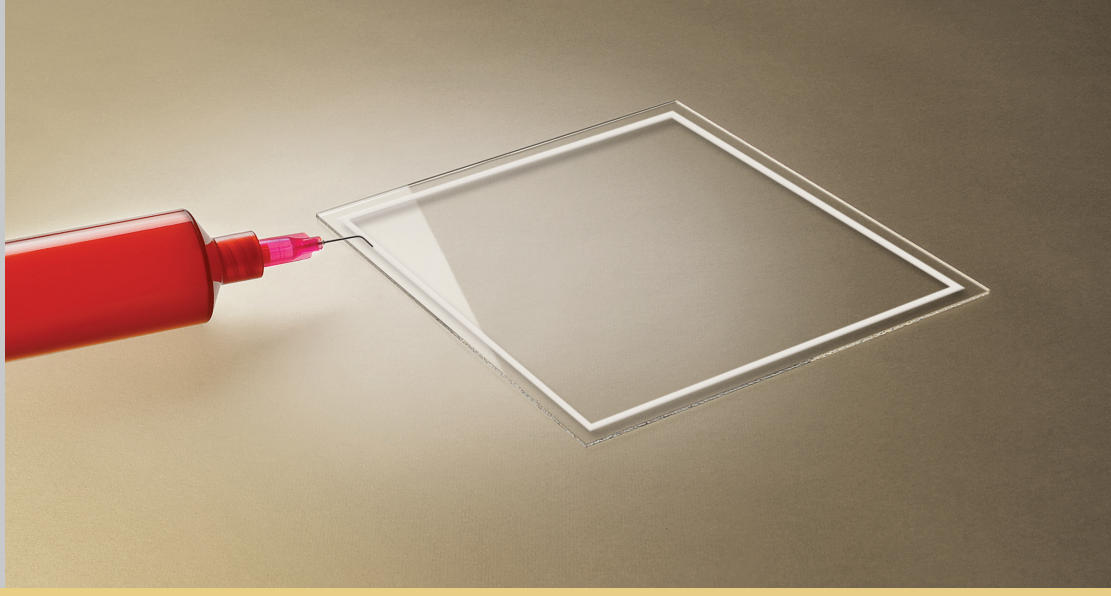
eGloo
Active Edge Sealant



HIGHLIGHTS

General Features

- ☐ The first air-printable active edge sealant to keep moisture out of sensitive packages
- ☐ An easy replacement of high performance edge sealants, boosting barrier properties through a proprietary getter technology
- ☐ Breakthrough time > 1,500 hours on 4 mm line width at 60 °C/90% RH
- ☐ Compatible with any surface suitable for UV-curing
- ☐ Now with increased adhesion performances

Applications

- ☐ Active Matrix OLED displays
- ☐ Passive Matrix OLED displays
- ☐ OLED lighting systems
- ☐ Organic photovoltaic devices
- ☐ Organic sensors
- ☐ OFETs
- ☐ OLETs
- ☐ Organic lasers
- ☐ Any moisture-sensitive device

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Product Description

eGloo is a UV curable dispersion of irreversible moisture getter in an epoxy matrix. It is designed to work as an active edge sealant.
eGloo looks like a whitish paste.

eGloo Properties

Material Property	Typical value
Appearance	Whitish glue
Viscosity at 25 °C (cP) (*)	120,000
Density (g/cm^3)	1.20
Thermal stability at 100 °C	Stable (<<1%wt loss)
Decomposition temperature (°C)	> 300
Tg (glass transition temperature) (°C)	100 < T_g <120
Storage temperature (°C)	+2 to + 5
Shelf life (months)	2 (**)
Pot life (RT, < 10 ppm H_2O) (days)	>5
Storage atmosphere	Dry air or nitrogen
Lap Shear(***) (MPa)	>6.9
CTE (K^{-1}) (****)	$5.4*10^{-3}$

(*) at a shear rate of 5 s^{-1}
(**) tests are ongoing. Expected shelf life is >6 months.
(***) in glass to glass configuration, with properly cured glue (according to ASTM D1002). Glass specimen broke at the indicated value
(****) temperature range of measurement: 20-100 °C

Processing

Bring eGloo to room temperature for at least 2 hours before use.
After deposition the uncured glue can be exposed to air for a maximum of 1 hour before losing part of its getter capacity (typical capacity loss in 25 °C / 55% RH conditions for a 200 µm layer of eGloo after 1 hour air exposure is in the order of 30% of the total capacity).

Deposition

Typical dispensing by syringe (needle diameter > 0.1 mm)

Typical deposition values:

- Needle: 400 µm; Pressure: 30-75 psi; Speed: 40 mm/s; Dispense gap: 200 µm

Compatible surfaces are:

- Glass
- Stainless Steel and other metals (one-side only e.g. metal to glass)
- Plastics if compatible with UV curing

Curing

- UV Curing is required
- Suggested curing conditions are:
  - ☐ irradiance of 100mW/cm^2 for > 120s with λ = 365 nm
  - ☐ thermal post curing at 80 °C for 30 minutes

- max irradiance: < 500mW/cm^2
- max energy density: < 12J/cm^2

- Weight loss during curing: < 0.2 %

Adhesion to glass substrate

Lap Shear test was performed on glass to glass sample, with properly cured glue.
After 1000h exposure @85 °C/85% RH eGloo shows high adhesion strength.
(*) Glass specimen broke at the indicated value.

Adhesion	t=0h	t=500h	t=1000h
Lap shear strength (MPa)	>6.9 (*)	>7.5 (*)	>8.3 (*)

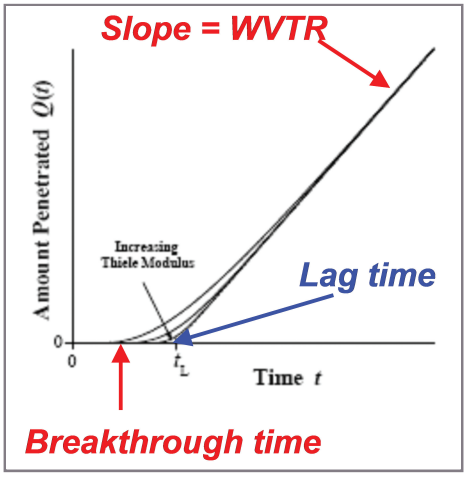
Barrier Properties

Barrier property	eGloo Typical value
WVTR at 23 °C 65% RH (300 µm, g/m^2 day) after saturation(*)	<0.1
Breakthrough time on 4 mm line width at 60 °C/90% RH (*) (hour)	>1,500 (**)

(*) In glass to glass configuration, on properly cured film. During breakthrough time the permeability is theoretically null and lower than the limit of detection.

(**) This can be considered equivalent to 2.5 years at 25°C 30% RH. After this transient period the glue keeps working as state-of-art passive barrier, as shown with the reported WVTR after saturation.

Barrier Properties: the Concept of Breakthrough Time



Cleaning

Typical solvent used for cleaning is Acetone, toluene, methyl ethyl ketone (MEK) and glycol ethers.

Shipping and Storage

eGloo recommended storage temperature is between 2 and 5°C.
eGloo can be stored in a normal refrigerator provided that the original packaging is not open, or it is sealed in dry atmosphere.
In the event of exposure to temperatures higher than 50°C, eGloo must be discarded.

Handling and Air Exposure

Once removed from the barrier bag, eGloo can be exposed to air within 8 hours if packed in the original syringe.
In the event of air exposure > 8 hours, eGloo must be discarded.
Before use, it must be left at room temperature for at least 2 hours; otherwise viscosity could be higher than the nominal value.
Uncured eGloo can be maintained at room temperature for maximum 120 hours before use.

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SAES Group
www.saesgroup.com
functional_chemicals@saes-group.com