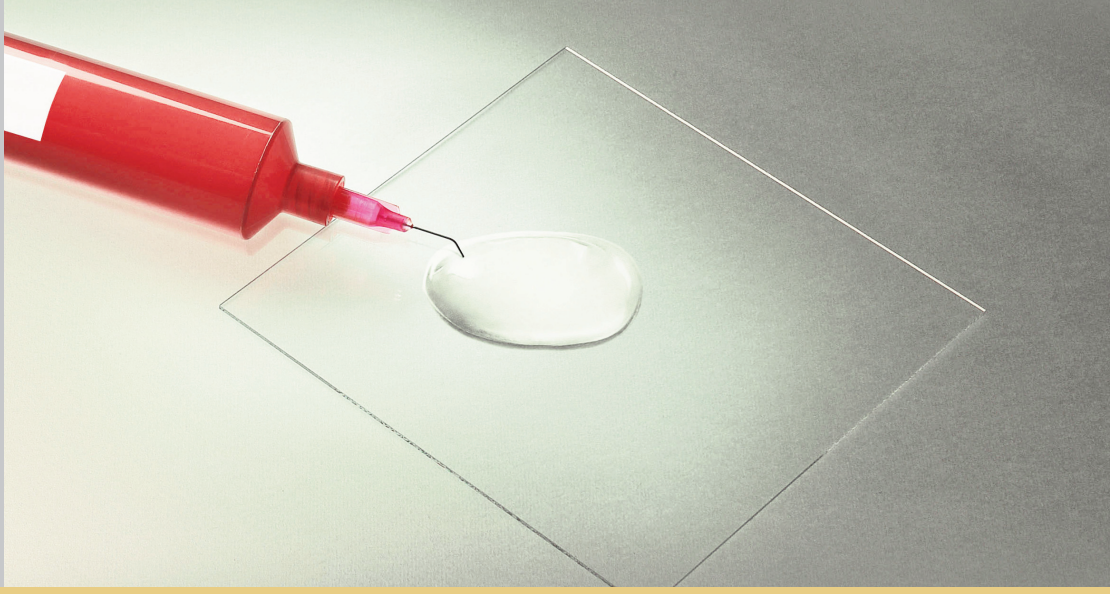
AqvaDry®- Ink

Transparent Dispensable Dryer



HIGHLIGHTS

General Features

- ☐ Moisture sorption capacity to assure long life to organic devices
- ☐ The material can be used as filler or as active organic layer in TFE
- ☐ High compatibility with typical inorganic layers used in TFE (like SiNx, Al_2O_3)
- ☐ Optical transparency in the visible region during and after moisture adsorption
- ☐ Solvent-free ink-jettable formulation

Applications

- ☐ Active Matrix OLED displays
- ☐ Passive Matrix OLED displays
- ☐ OLED lighting systems
- ☐ Organic photovoltaic devices
- ☐ Organic sensors
- ☐ OFETs
- ☐ OLETs
- ☐ Organic lasers
- ☐ Flexible organic devices

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Product Description

AqvaDry® is a transparent, UV curable, dispensable dryer designed to be used in OLEDs and organic electronics applications. AqvaDry®-Ink is now available as an ink-jettable formulation, typically used as filler or film, to improve the performances of Thin Film Encapsulation (TFE).

Material Property	Typical value
Appearance	Transparent liquid
Viscosity at 20 °C (cP)	41.8 (*)
Viscosity at 60 °C (cP)	10.2 (*)
Density (g/cm^3)	1.2
Tg (glass transition temperature) (°C)	145 to 155
Elastic molulus of films 50 - 10 µm (MPa)	400 (**)
Moisture capacity (wt %)	> 2
Maximum particle size (µm)	No particles
Storage temperature (°C)	2 to 5
Shelf life (months)	6
Pot life (RT, <10ppm H_2O) (days)	> 30

(*) at 5 s^{-1} shear rate
(**) at 0.1 Hz and 20 °C

Processing

Bring AqvaDry-Ink to room temperature before processing.
No mixing or stirring is required.

Deposition

AqvaDry-Ink is designed for ink-jet printing
Suggested printing parameters:

- Frequency: 1000 Hz
- High voltage: 78 - 79 V
- Print head temperature: 60 °C
- LED Delay: 80 ms.

Curing conditions

AqvaDry-Ink is a UV curable formulation.
Suggested UV curing conditions:

- Energy of 1.5 J/cm^2 at λ = 365nm (typical irradiance 100 mW/cm^2)
- Curing must take place in nitrogen atmosphere ([H_2O], [O_2] < 30 ppm)
- No outgassing is observed during curing
- No thermal post-curing is required.

Suggested configurations of AqvaDry-Ink for encapsulation are:

- Active filler
- Active organic layer in TFE being highly compatible with typical inorganic layers (SiNx, Al_2O_3)

Shipping and Storage

Shelf life of AqvaDry-Ink is 6 months.
Storage conditions are temperature of 2 - 5 °C and dry atmosphere. AqvaDry-Ink can be stored in a normal refrigerator (not in glove box), closed in its original perfectly thermo-sealed barrier package.

Handling and Air Exposure

Before use, it must be left at room temperature for at least 2 hours to achieve the right viscosity, otherwise viscosity could be higher than the nominal value.
The barrier bag should be opened in glove box (< 10 ppm H_2O).
Opening in air must be avoided.
In the event of air exposure, AqvaDry-Ink must be discarded.
Pot life of AqvaDry-Ink at RT in its original container is longer than 1 month.

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