ORDYL SY 300

PRODUCT DATA SHEET
Edition 08 –28 August 2019

PRODUCT DESCRIPTION

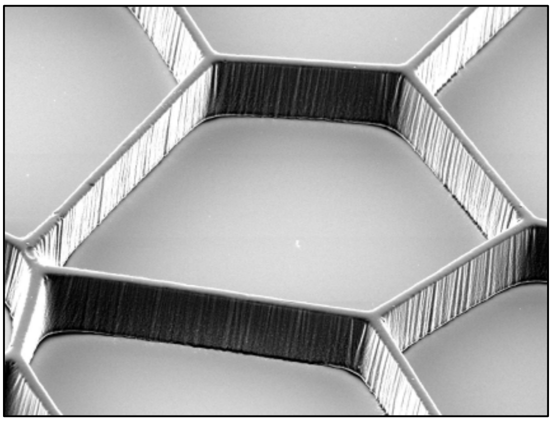
Ordyl SY 300 is a solvent type permanent dry film for special MEMS applications.

The Ordyl SY 300 in connection with his auxiliary product line CFC free: Ordyl SY Developer and Ordyl SY Rinse, offer the following performances:

- Excellent resolution
- Excellent heat resistance
- Excellent chemical resistance
- High stability
- Biocompatibility

Ordyl SY 300 could be used for sealing application, due to the capability to be pressed together with a top plate.

SY 355



Main Features:

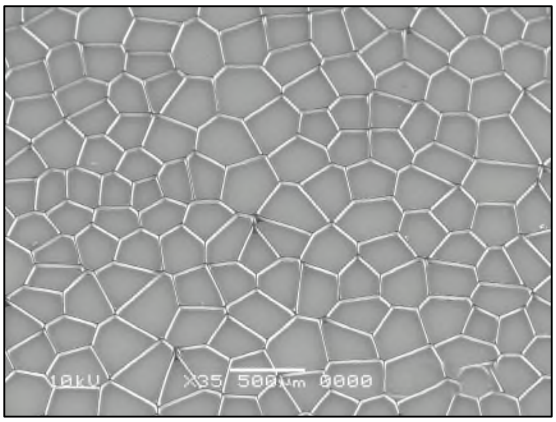
- Excellent chemical resistance
- Biocompatibility

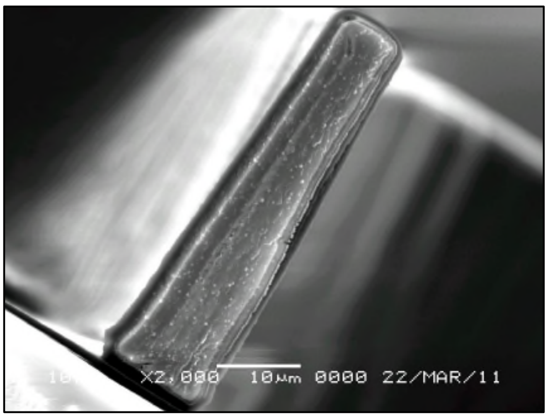
Typical Application:

- MEMS
- Sealing application

Available Thickness:

- 10 µm (0.4 mils), 20 µm (0.8 mils), 30 µm (1.2 mils), 55 µm (2.2 mils) and 125 µm (5 mils)
- Different thickness available on request





PROCESS INFORMATION

Ordyl SY 300 guarantee good adhesion on the following surface:

- Glass
- Silicium
- Kapton
- Mylar

We recommend good surface cleaning in order to obtain optimal performance.

Lamination

Panels must be thoroughly dry prior to lamination.

	MANUAL LAMINATOR	AUTOMATIC LAMINATOR
Pre-heat	(OPTIONAL)	(OPTIONAL)
Hot roll temperature	105 – 125°C (221 – 257°F)	105 – 125°C (221 – 257°F)
Lamination roll pressure	2.5 – 3.5 bar (36 – 50 Psi)	2.5 – 6.0 bar (36 – 87 Psi)
Lamination speed	1 – 3m/min (3 – 10 feet/min)	1 – 3m/min (3 – 10 feet/min)
Seal temperature	---	40 – 80°C (104 – 176°F)
Seal pressure	---	3.0 – 6.0 bar (44 – 87 Psi)
Seal time	---	1 – 4 sec.

Post lamination Hold Time

We recommend a hold time of at least 15 min, or in any case the minimum hold time necessary to allow panels to cool down to room temperature.

Hold time should not be over 1 week.

Exposure

We recommend using UV lamps or laser source with emission peak at 360 – 380 nm.

Energy (mJ/cm^2)	100	150	200	250	300	350	400
SST 21	5	6	7	8	9	9.5	10
RST 25	4	7	10	13	16	17-18	19

Hold Time after exposure

We recommend a minimum hold time after exposure of at least 15 minutes.

Developing

SY 300 could be develop with spray, paddle or dipping method.

Using Ordyl SY Developer in dipping process at room temperature maintain the Break Point between 60% and 80% depend on application.

Use Ordyl SY Rinse to remove scum and clean the surface.

If final rinse with DI water is necessary an intermediate rinse with IPA is suggested.

Post Bake

After developing is necessary a post-baking at 150°C (302°F) for 30 – 60 min.

Stripping

Ordyl SY 300 could be stripped only before post bake using Ordyl SY Developer increasing dipping time indicated in "Ordyl SY Developer product data sheet" or using solvent like Acetone or MEK in dipping method.

RESIST PROFILE

For the test we used a 55 µm thickness dry film, laminated on SiO_2 wafer.

EXPOSURE	LINE	SPACE
100 mJ/cm^2	60 µm (2.4 mils)	50 µm (2 mils)
150 mJ/cm^2	50 µm (2 mils)	60 µm (2.4 mils)
200 mJ/cm^2	40 µm (1.6 mils)	70 µm (2.8 mils)
250 mJ/cm^2	40 µm (1.6 mils)	80 µm (3.1 mils)

Exposure Unit ORC HMW201B not collimated.

REFERENCES:

A Lab-On-A-Chip For Automated RNA Extraction From Bacteria

http://www.freidok.uni-freiburg.de/volltexte/7020/

Lab-on-a-Foil: microfluidics on thin and flexible films

This critical review is motivated by an increasing interest of the microfluidics community in developing complete Lab-on-a-Chip solutions based on thin and flexible films (Lab-on-a-Foil).
Those implementations benefit from a broad range of fabrication methods that are partly adopted from well-established macroscale processes or are completely new and promising. In addition, thin and flexible foils enable various features like low thermal resistance for efficient thermocycling or integration of easily deformable chambers paving the way for new means of on-chip reagent storage or fluid transport. From an economical perspective, Lab-on-a-Foil systems are characterised by low material consumption and often low-cost materials which are attractive for cost-effective high-volume fabrication of self-contained disposable chips. The first part of this review focuses on available materials, fabrication processes and approaches for integration of microfluidic functions including liquid control and transport as well as storage and release of reagents. In the second part, an analysis of the state of Lab-on-a-Foil applications is provided with a special focus on nucleic acid analysis, immunoassays, cell-based assays and home care testing. We conclude that the Lab-on-a-Foil approach is very versatile and significantly expands the toolbox for the development of Lab-on-a-Chip solutions.

http://www.loac-imtek.de/fileadmin/loac/Projekte_und_Publikationen/Ausgewaehlte_Publikationen/lab-on-a-foil_-_microfluidics_on_thin_and_flex.pdf

Dry Film Resist For Fast Fluidic Prototyping

Dry film photoresist is used for creating microfluidic structures by sandwiching the patterned resist in between of two substrates.
The technique is applied for creating hybrid biochips for dielectrophoretic cell manipulation.
Multiple level lithography is demonstrated and biocompatibility of the resist is proven.
Due to simple fabrication procedures the resist can be processed in a low-tech environment.

http://hal.inria.fr/docs/00/34/64/73/PDF/Dry_film_resist_for_fast_fluidic_prototyping.pdf

For any other technical information (storage conditions, packaging information, etc.) refer to the Ordyl Specification (Form EE.P11.CV.02-ww).

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