



Dow Adhesives
for Packaging, Textiles & Hygiene

Water Borne PSA for Blue Masking Tape State of the Art

Afera Technical Seminar 2015, Brussels

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• Outline

- Construction of Masking Tape
- Key Factors Influencing Finished Tape Properties
- Market and Application Requirements
- Challenges and Solutions
- ROBOND™ PS 9005 Performance



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• What Is A Masking Tape?

Used in painting or finishing operations to protect or “mask” a surface

PSA tape for
surface protection



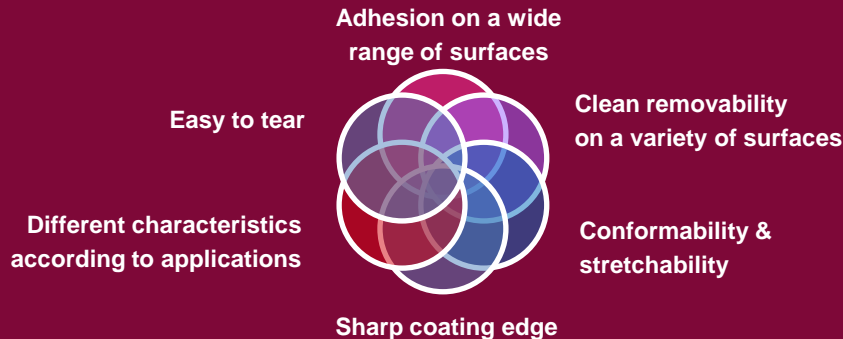
Mask-off surfaces while
treatment is applied



Mainly made
of paper



General Features

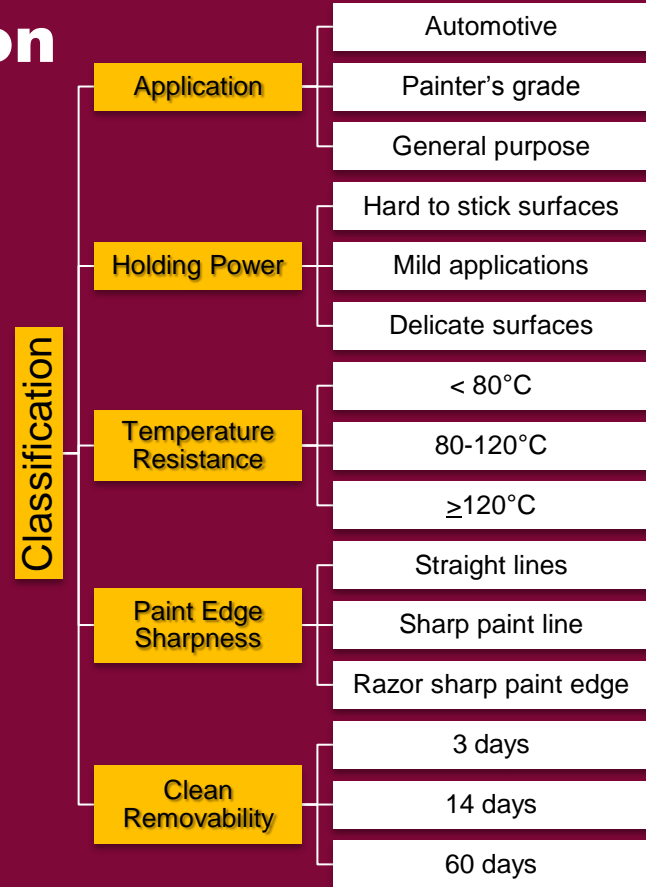


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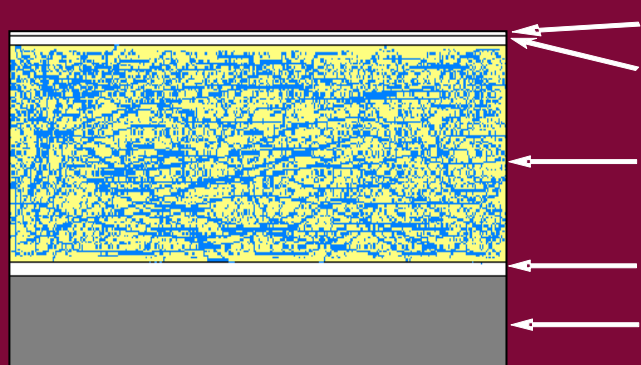
Masking Tapes Classification

Highly fragmented product lines
and performance requirements
due to a variety of surfaces and
environmental conditions



Masking Tape Structure

A Complex Structure and Process

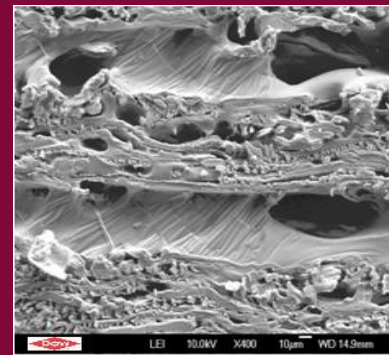


Release Coat 1.5-3 g/m²
Optional Barrier

Saturated Paper

Optional Primer

Adhesive



100 microns

Paper Impregnation

Release Coating

PSA Coating



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Masking Tape Components

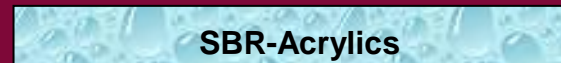
A Complex Structure & Process



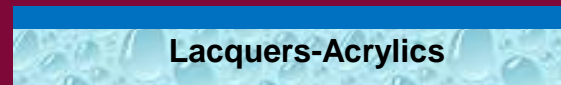
Base Paper
Tearability/ Conformability/ Stretchability



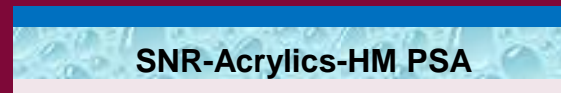
Saturation
T & E/ Conformability/ Barrier



Release Layer
Unwind Force/ Barrier



Adhesive Layer



PSA Performances: Holding Power, Clean Removability...



Masking Tape Adhesive Chemistry Selection

SIS	Very Aggressive	(4.5 – 5.5 N/cm)
SNR	Aggressive	(3.5 – 5.0 N/cm)
Blend of SNR + SIS	Moderate	(2.8 – 3.5 N/cm)
WB Acrylic	Low – Moderate	(1.5 – 2.5 N/cm)
Solvent Acrylic	Moderate – Aggressive	(3.5 – 5.0 N/cm)
SBR	Moderate	

Choice of adhesive chemistry depends on many factors

Performance
Requirements

Process Capability

Components
Compatibility

Cost

*The release selection will depend on the adhesive choice
and the **desired unwind** = loose, medium, tight*



Masking Painter's Grade

Market Technical Requirements



Multi-surfaces protection:
Wood/ PVC /Metal



U.V. & sunlight resistant



14 days clean removability
from painted dry wall



Resistance to paint
damage by paint over



Interior and exterior use



Limited peel built



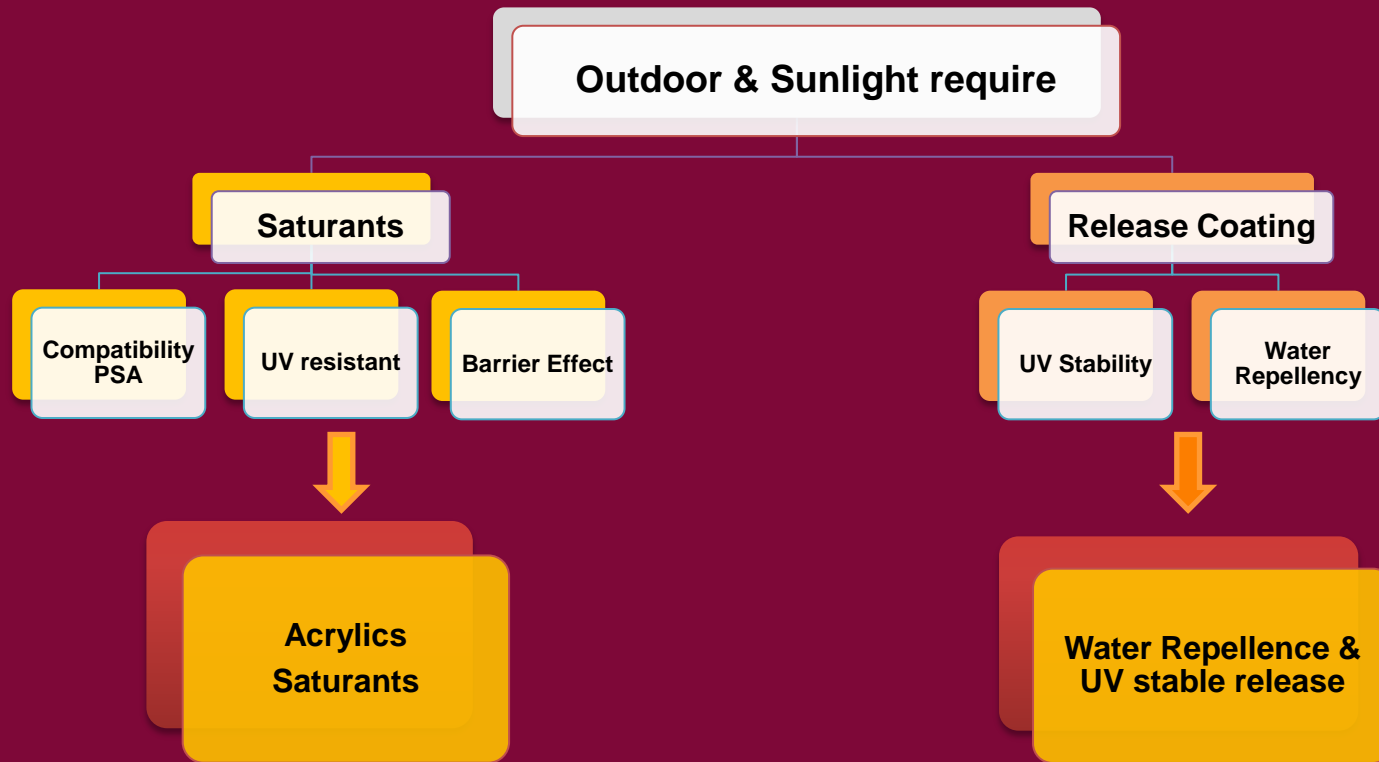
Water resistant
on adhesive side



Easy unwinding
properties



Masking Structure Selection



Masking Paper Selection



GESSNER® Outdoor

- ✓ High quality Blue smooth crepe paper
- ✓ Excellent tensile strength – UV resistance
- ✓ Strong water repellent release coat
- ✓ Suitable for WB acrylic PSA



Washi Tape

- ✓ Washi Paper
- ✓ High precision and clean lines
- ✓ Water repellent backing
- ✓ Suitable for WB acrylic PSA



GESSNER® Soft

- ✓ Sharp & super flat paint edge
- ✓ No paint penetration on paint edge
- ✓ Super Conformable
- ✓ Suitable for WB acrylic PSA

Applications

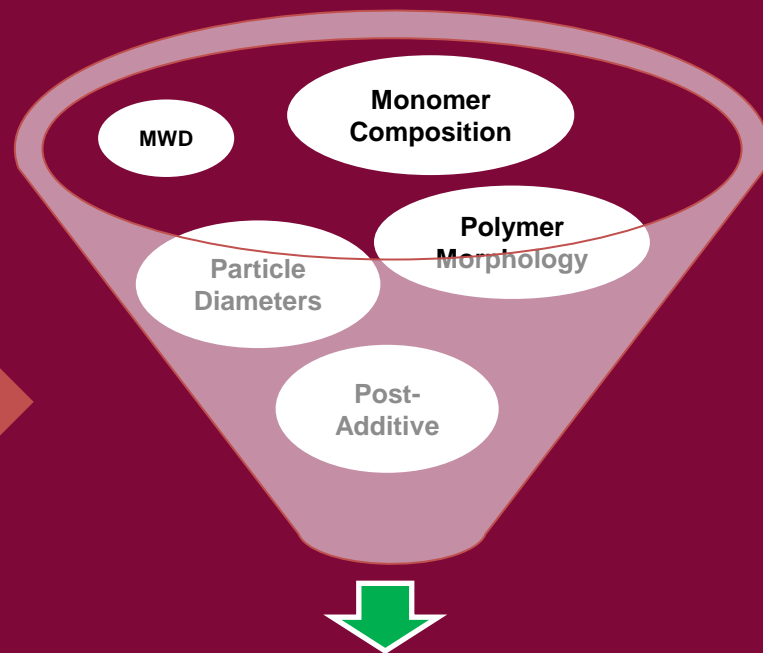
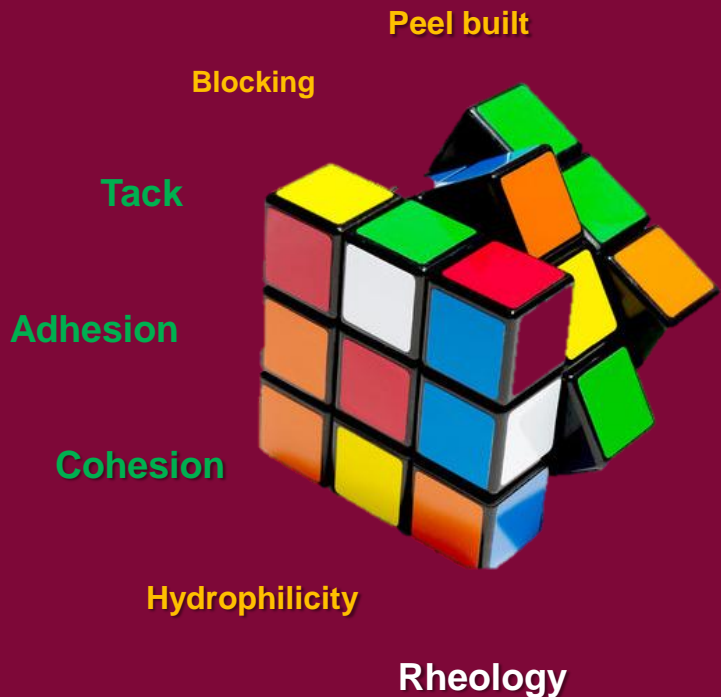
- Outdoor & Indoor
- Prolong Wind/Moisture/UV exposure
- Precise paint work & trim
- UV and Temperature stability
- Precise paint work & trim
- UV and Temperature stability

MT Components

- Saturant > Acrylic
- RC Feature > Strong water repellency
- Saturant > Acrylic
- RC Feature > Water repellency
- Saturant > Acrylic
- RC Feature > Strong water repellency



WB Acrylics PSA Development Blue Masking & Washi Tape



ROBOND™ PS9005

Solids: 57-58%
pH: 7.5-8.5
Viscosity 25°C: 200-600 cps



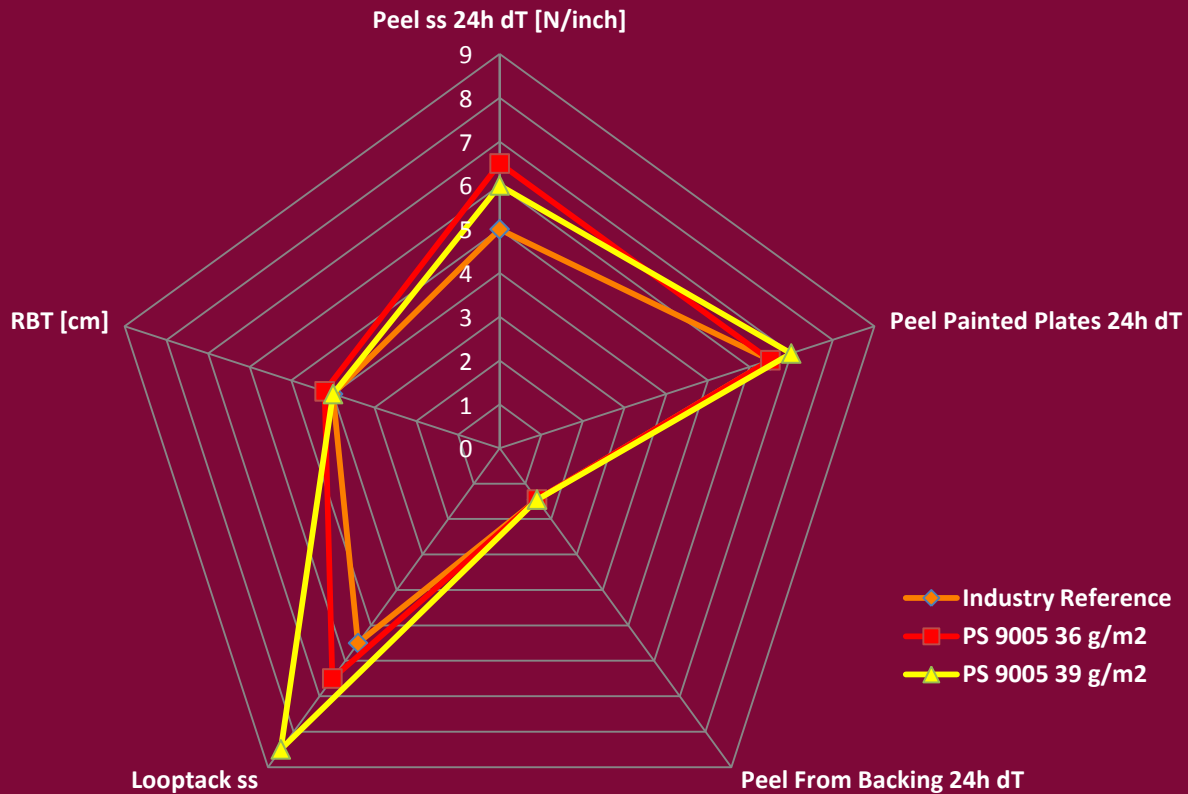
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Blue Masking Tapes



Blue Masking Tape with ROBOND™ PS-9005



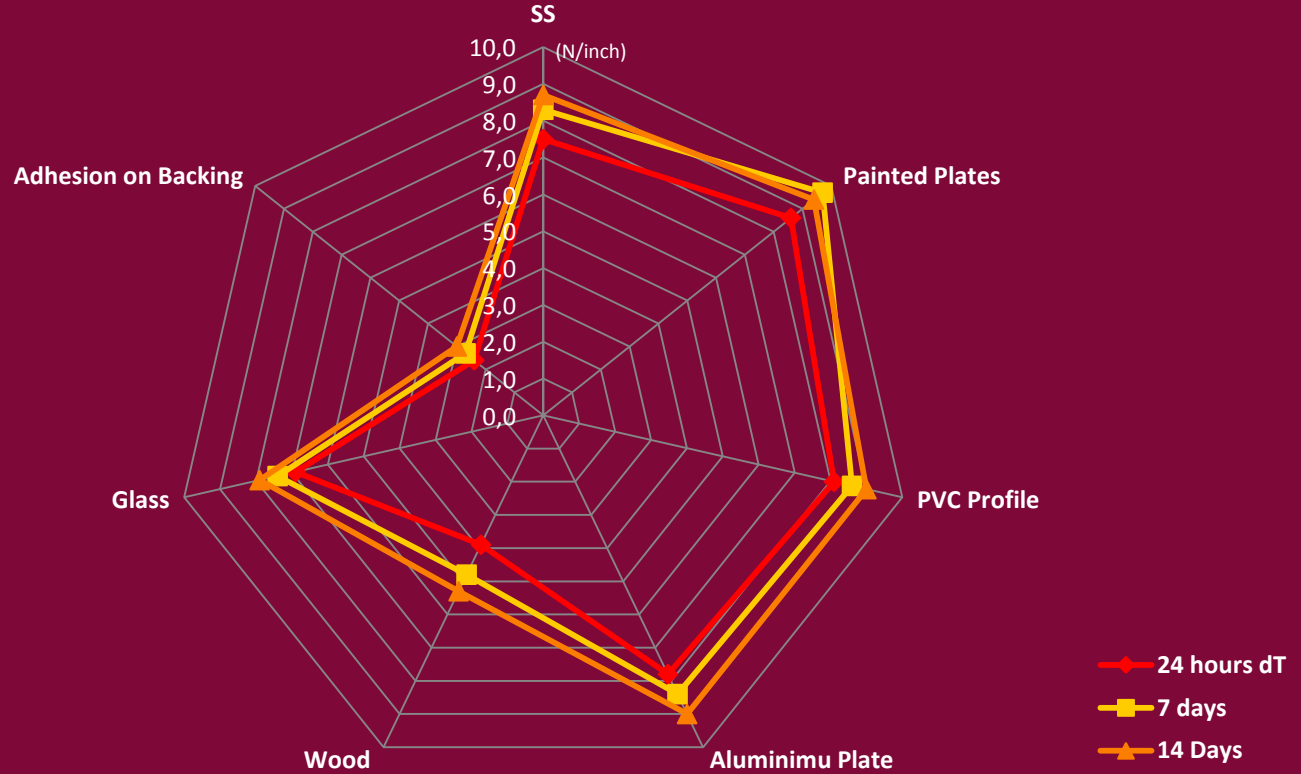
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• GESSNER® Soft



GESSNER® Soft with ROBOND™ PS-9005 (33g/m²)



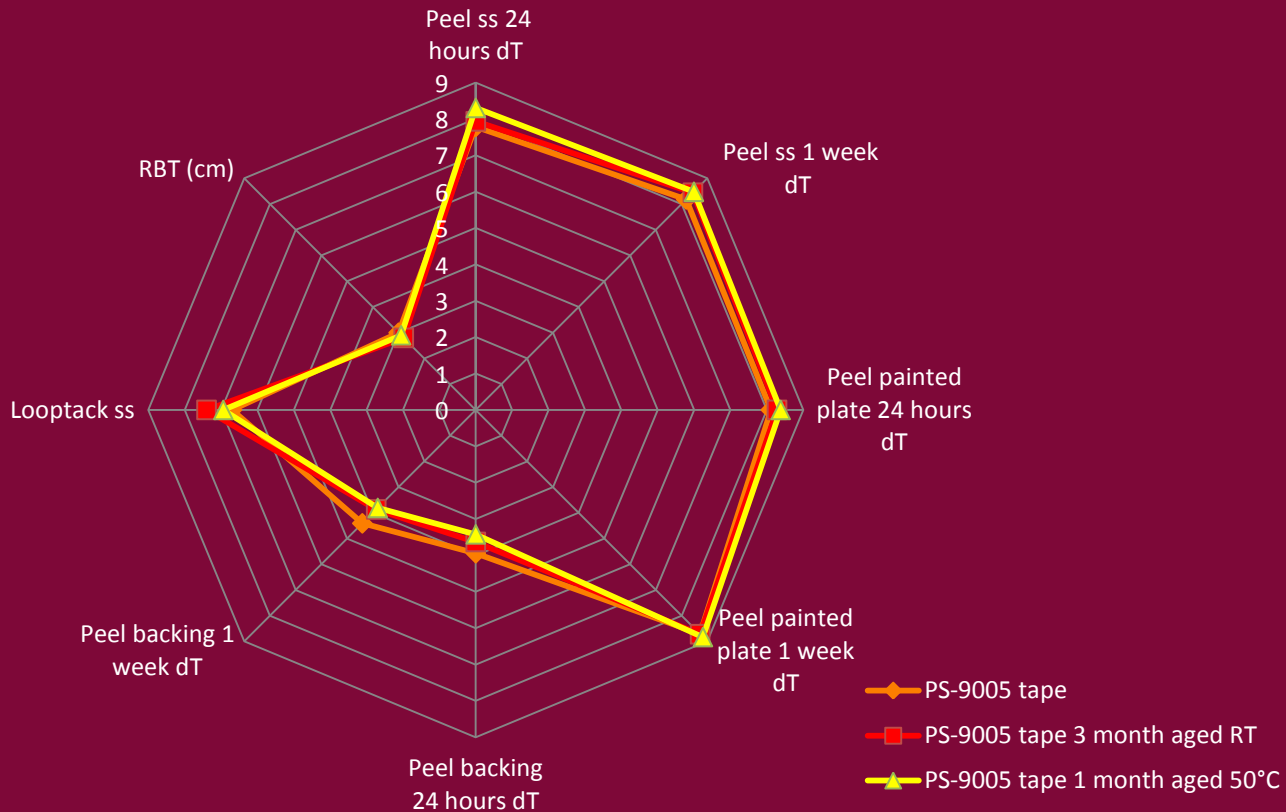
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Washi Tape



Washi Tapes (35g/m²) with ROBOND™ PS-9005



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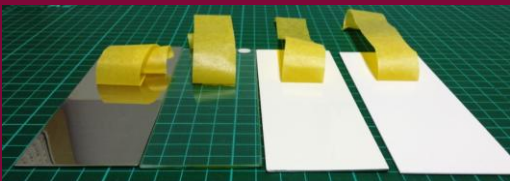
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• Dry Removability

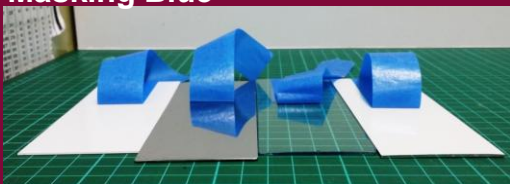
Clean dry removability
after **14 days** RT

6 months outside exposure:
clean removability from SS

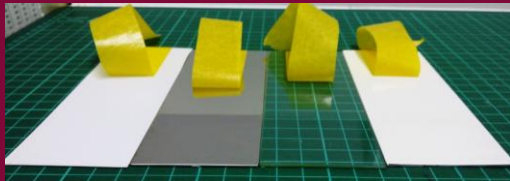
Washi



Masking Blue



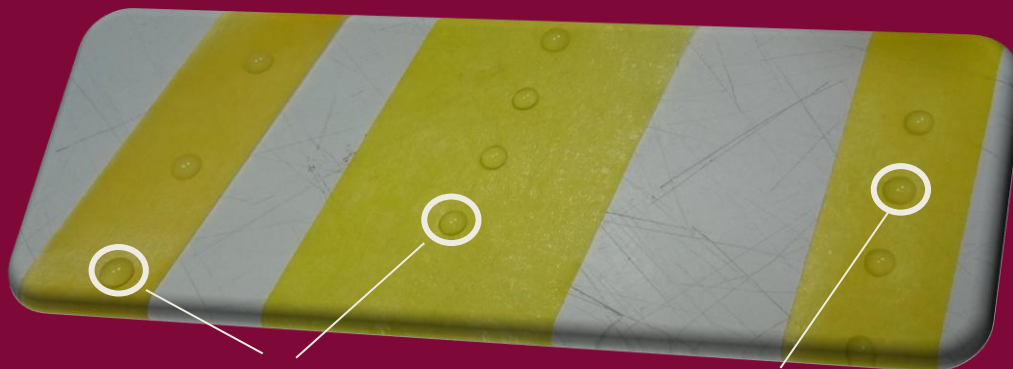
Gessner Soft



PS 9005 Water Resistance



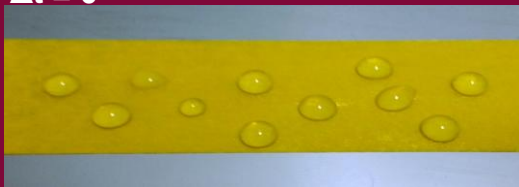
Drop Test
on Adhesive Side



ROBOND™ PS9005

Industry benchmark

$\Delta t = 0$



$\Delta t = 30 \text{ min}$



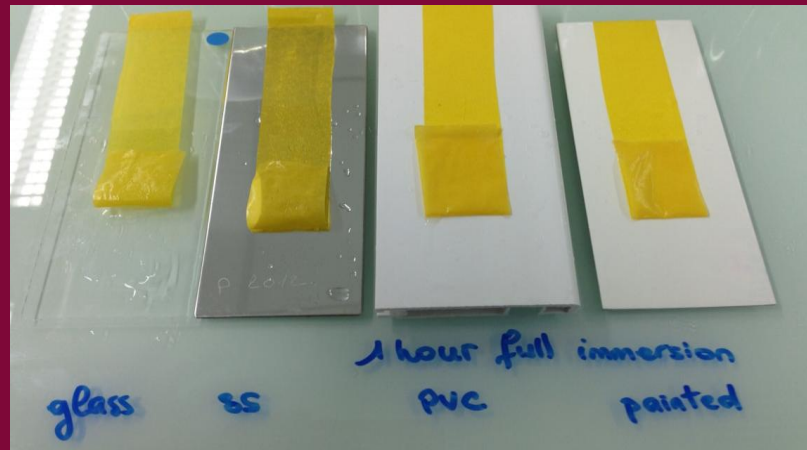
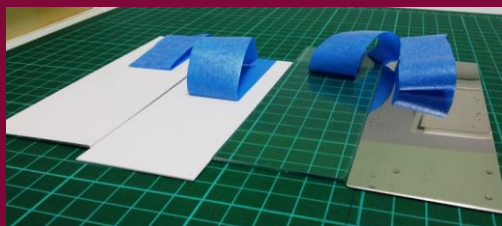
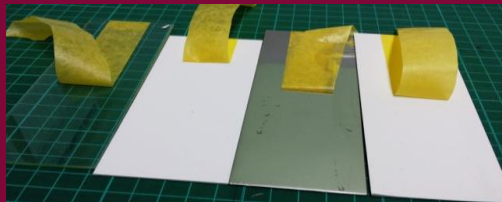
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PS 9005 Water Immersion



1 Hour
Water Immersion



PS 9005 UV Stability: QUV Test

Accelerating Weathering Tester on Blue* MT



Direct Sunlight Emulation (noon summer sun)



QUV Test Condition

- QU-A Lamp:
- Test Temperature: 60 °C
- Irradiance: 0.68 w/m2/nm
- Glass Plate

Evaluations Time

- 3 days QUV exposure \approx 14 days
- 30 min in CTR (25°C -50%H) before Peel

Performance Assessed

- Residue transfer
- Slowly MT peeling

Results > Positive

- No Adhesive Transfer
- No Adhesive Ghosting
- No Adhesive Stain



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*Masking Tape with Acrylics Saturant

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• Summary and Conclusions

- Masking tape is a complex and challenging field of application as **market requirements are highly demanding** to be fulfilled by a standard WB acrylic PSA
- **ROBOND™ PS-9005** is a water-based acrylic Pressure Sensitive adhesive specifically designed for both painter's grade applications **blue masking** and **washi tape** characterized by stable properties over time
- **ROBOND™ PS-9005** combines **adhesion-cohesion balance** properties together with clean dry removability and **high water resistance**
- The **high compatibility** with acrylics saturants, its **outstanding adhesion** on a variety of surfaces and its **easy unwinding** complete its performance range



• Acknowledgement



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