



Sustainable Solutions Ultimate Formulations



Zero Formaldehyde BioResin For
Easy Care Finishing On Textile

*One Of The World's First Plant Based &
Biodegradable Bioresin*

QUICK HISTORY OF DURABLE PRESS FINISHES

Earlier Generation Resin were based on Unsustainable Urea-formaldehyde & Ethylene Urea formaldehyde technology

SYNTHETIC TECHNOLOGY	YEAR	REACTION TECHNOLOGY	PERFORMANCE
1 st Generation	1929	Urea & Formaldehyde	Wrinkle Resistant Stiff Fabric, Formaldehyde release
2 nd Generation	1940's	Urea-formaldehyde derivatives	Yellowing, Formaldehyde release
3 rd Generation	1960's	Formaldehyde -Ethylene urea condensation reactions	Permanent Press finish, Formaldehyde release



ENVIRONMENTAL ISSUE



PERFORMANCE ISSUE



WHAT'S THE PROBLEM WITH OLD CHEMISTRIES?

Right now, The industry mainly relies on DMDHEU & DMeDHEU also known as Ethylene Urea formaldehyde resins, which are upgraded versions of urea formaldehyde resin.

IMPACT OF OLD CHEMISTRIES ON THE ENVIRONMENT & HEALTH

HEALTH & ENVIRONMENTAL ISSUES

ETHYLENE UREA	Suspected damage to fertility of unborn child, Damage to Organs
FORMALDEHYDE	Carcinogenic, Increased risk of leukaemia
Environmental Impact of DMDHEU	
DMDHEU	High Aquatic Toxicity
DMDHEU	Formaldehyde releaser & Organ Damage

IMPACT OF OLD CHEMISTRIES ON PERFORMANCE

PERFORMANCE ISSUE

TENSILE STRENGTH	Significant reduction in Tensile Strength
TEAR STRENGTH	Significant Reduction in Tear Strength
WHITENESS	Contributes to fabric yellowing



WHAT'S NEW?

SCHUTZEN Chemical Group has launched one of the world's First Zero formaldehyde Plant based & Bio-degradable BioResin for Easy Care Finish on Textiles.

Our products do not contain hazardous ingredients such as formaldehyde, Urea, Ethylene Urea condensate, The reaction pathway is highly sustainable.

BIOTECHNOLOGY	NEW GENERATION TECHNOLOGY	PERFORMANCE
1 st Generation	Plant based BioResin Polymeric technology	Durable Press finish, Zero formaldehyde, Biodegradable

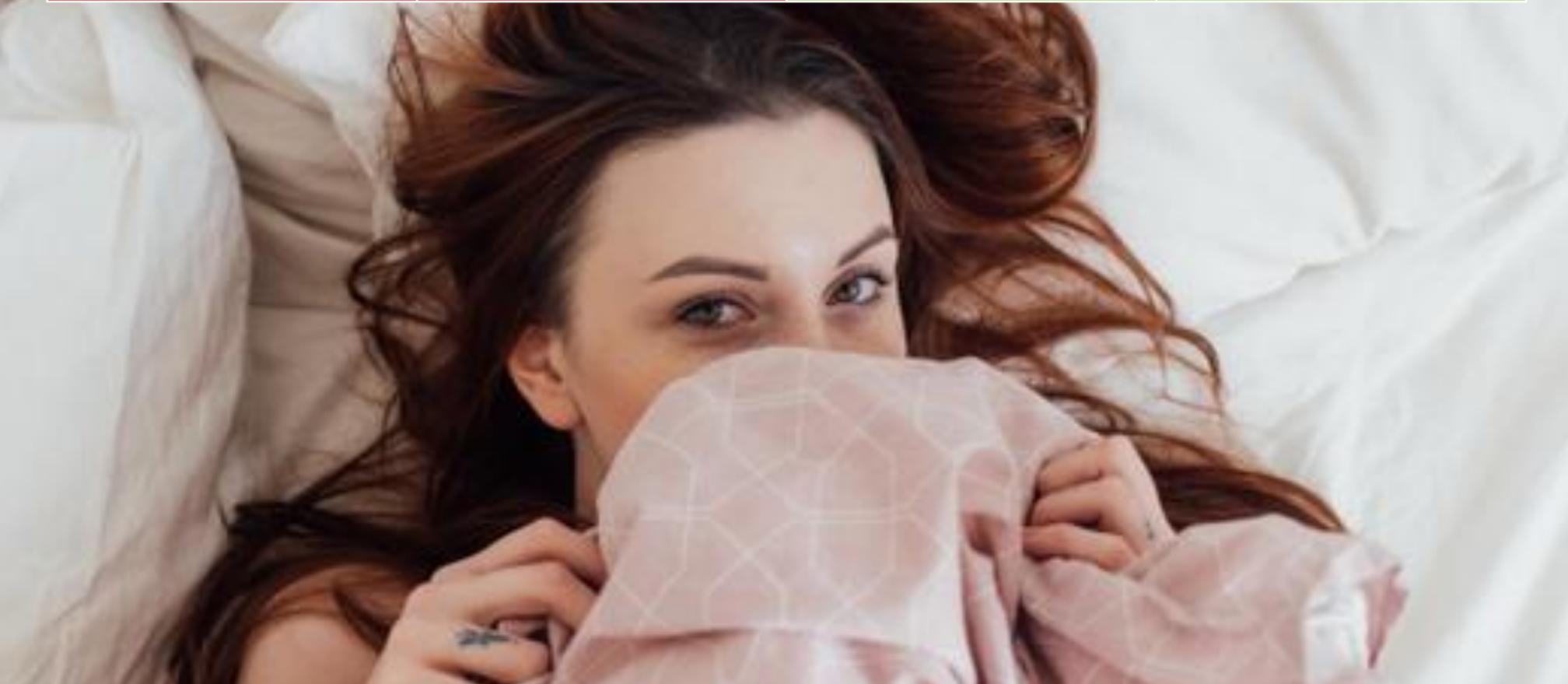




How does SCHUTZENRESIN-X7BIO mitigate Health & environmental risks?

ENVIRONMENTAL & HEALTH RISK ARE MITIGATED USING SCHUTZENRESIN-X7BIO

DMDHEU TECHNOLOGY	ENVIRONMENTAL & HEALTH IMPACT	SCHUTZENRESIN-X7BIO	ENVIRONMENTAL & HEALTH IMPACT
ETHYLENE UREA CONDENSATE	ORGAN DAMAGE, HIGH AQUATIC TOXICITY	BIOPOLYMER BASED TECHNOLOGY	NO HEALTH ISSUES, BIODEGRADABLE
FORMALDEHYDE	CARCINOGENIC	ZERO FORMALDEHYDE	DOES NOT CONTAIN FORMALYDEHYDE NOR RELEASED FORMALDEHYDE





How does SCHUTZENRESIN-X7BIO Outperform DMDHEU BASED Resins?

While, SCHUTZEN products are based on environmentally friendly products, They also outperform competing old unsustainable chemistries which are based ethylene urea condensate technology.

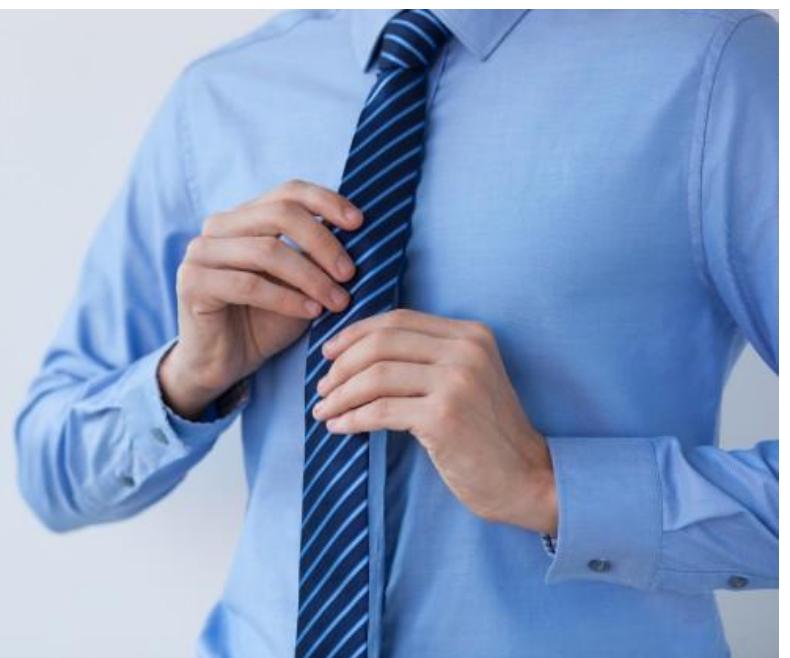
PERFORMANCE ENHANCEMENT USING SCHUTZENRESIN-X7BIO

DMDHEU TECHNOLOGY PERFORMANCE IMPACT		BIOPOLYMER TECHNOLOGY PERFORMANCE IMPACT	
TEAR STRENGTH	Loss in Tear Strength	TEAR STRENGTH	Gain in Tear Strength
TENSILE STRENGTH	Substantial loss	TENSILE STRENGTH	Reduction in loss
CREASE RECOVERY ANGLE IMPROVEMENT	Standard	CREASE RECOVERY ANGLE IMPROVEMENT	At Par
DP RATING	Standard	DP RATING	At Par
WHITENESS	Yellowing	WHITENESS	Non Yellowing

TEST METHOD STANDARDS

CREASE RECOVERY ANGLE	IS 4681-1981 RA 2014
DP RATING	AATCC 124-2018
FORMALDEHYDE RELEASE	ISO:141484 PART II:2011
TEAR STRENGTH	ELMENDROF IS64891-1-1993 RA 2017
TENSILE STRENGTH	IS:1969 PT.1:2014
WHITENESS INDEX CIE	AATCC 110:2015

SCHUTZEN products are based on environmentally friendly products





BASIC RECIPE GUIDELINES

Below is a guideline recipe for Easy Care finish on bed linens.

EXAMPLE GUIDELINE BASIC RECIPE FOR RESIN FINISHING APPLICATIONS

SCHUTZNRESIN-X7BIO	100-200gpl	Bioresin
CATALYST-MGL	12.5-25gpl	Catalyst liquid form
SCHUTZENSOFT-BSE 3	80-100gpl	Block Silicone Softener
SCHUTZENSOFT-HWX	20-30gpl	Polyethylene Wax emulsion
SCHUTZENSOFT-PU	30-40gpl	Polyurethane dispersion
SCHUTZENSOFT-SIL	40gpl	Amino Silicon
PROCESSNG DRY-CURING PROCESS		
DRYING	110-130 Deg C	Standard Procedure
CURING	3mins @150 Deg C	Standard Procedure



IMPORTANT NOTES

It is very important to balance the ratio of

- ✓ BIORESIN SCHUTZENRESIN-X7BIO: CATALYST-MGL
- ✓ Catalyst Dosing should be 10%-13% minimum 20gpl of Resin W/W basis

Please note standard processing guidelines can be followed with SCHUTZENRESIN-X7BIO

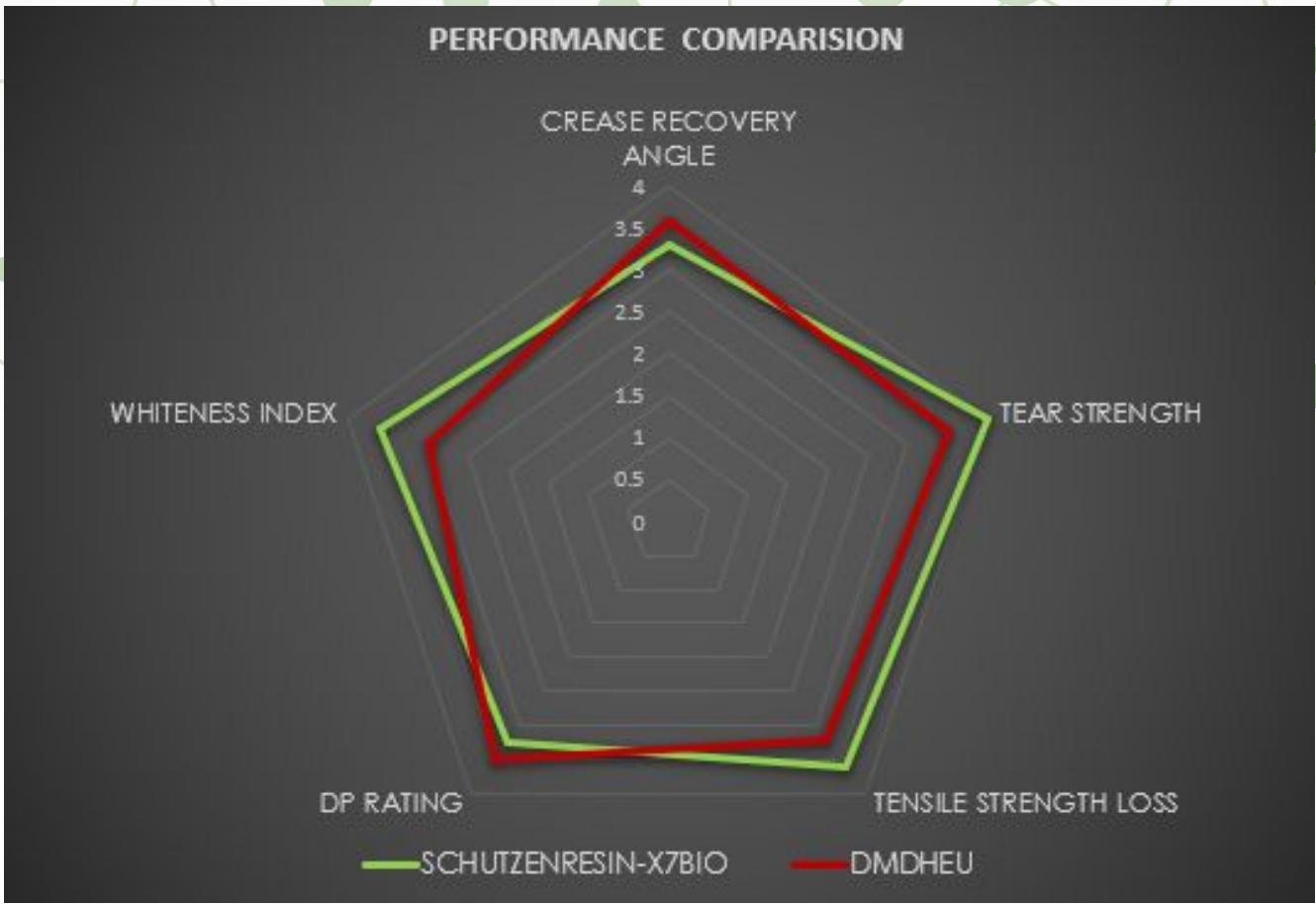
- ✓ 2 Step Processing
- ✓ Flash Cure Processing (1-Step Process)





KEY FEATURES

- ✓ Bio Based & biodegradable
- ✓ Zero Formaldehyde
- ✓ Tear Strength improver
- ✓ Tensile Strength loss reducer
- ✓ Crease recovery angle improver
- ✓ Non yellowing
- ✓ Shear Stable
- ✓ pH Stable
- ✓ Excellent Bath Stability
- ✓ Excellent Durability & Wash fastness
- ✓ High temperature stability



Test Method Standards

Crease Recovery Angle	IS 4681-1981 RA 2014
DP Rating	AATCC 124-2018
Formaldehyde release	ISO:141484 Part II:2011
Tear Strength	Elmendorf IS64891-1-1993 RA 2017
Tensile Strength	IS:1969 Pt.1:2014
Whiteness Index CIE	AATCC 110:2015



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