



## FUNCTIONAL TEXTILES BROCHURE

#Waterborne polyurethane dispersions

#sporttech #protech #hometech #outdoor #indutech  
#sporttech #protech #hometech #outdoor #indutech  
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#vynaxfestival

# HELLO

**We are Vynax.**

**We are bonding sparkling ideas with our chemistry.**

We are standing for reaching these bonds into their potential with high performance.

For this purpose, we imagine being a platform where each driven solution is created with all our stakeholders.

Our toolbox is full of commitment and empowerment to encourage ideas put into practice.

We are inspired by hydrogen bonding and our history began.

**The story of us is based on an intrapreneurship project in Denge Kimya. Our aspiration comes from those striving days and beyond.** Our business is based on urethane chemistry particularly and so on.

## We have a wide variety of:



Water Column



Hydrophilicity



Durability



Moisture Management



Flame Retardancy



Halogen-free

**ISO 811:** Water Column Properties Under Hydrostatic Pressure

**AATCC 22:** Water Repellency as Spray Method

**BS EN 20811:** Water Column

**ISO 6330:** Domestic Wash

**EN ISO 9237:** Air Permeability

**AATCC 118:** Oil Repellency

**AATC 197:** Wicking Test (Vertical)

**AAATC 198:** Wicking Test (Horizontal)

**ASTM F3628-23 & ISO 11092:** Wicking and Moisture Management

## Branches

### Industrial and Protective

·Camouflage

·Workwear

### Lifestyle

·Outdoor

·Cosmopolitan



Clothes



Outdoor Tents



Raincoats



Automotive Parts



Parachute Parts



Backpacks



Athleisure Wear



Socks



Glass-fibers

# #whyPUD?

**Polyurethane dispersion (PUD) is gaining attention as a promising material due to its versatility and sustainability.** Its profile allows fabrics to achieve the highest performance. Although they are mainly known as hydrophobic materials, new-generation hydrophilic ones are now being considered. **Moreover, as the world moves towards a low-carbon economy, techniques like carbon capture are being explored for use in PUD production, further enhancing their sustainability profile. Its versatile chemistry has an upcycling and recycling backbone.**

Check out our diverse range of polyurethane dispersions on the right side! Whether it's chemical resistance, UV resistance, flexibility or heat resistance you're after, our handy chart will guide you to the perfect polyurethane dispersion pick tailored to your anticipated needs. Dive in and discover your ideal match!

FEATURES	POLYETHER BASED	POLYESTER BASED	POLYCARBONATE BASED
hydrolysis resistance	+++	0	++
chemical resistance	0	++	+++
heat resistance	+	++	+++
flexibility	+++	++	+
flexibility at low temperatures	+++	++	+
UV resistance	0	+	++
abrasion resistance	+	+++	++

The information mentioned on the table is based on our present state of knowledge and to inform you about our products and their application possibilities. This is a very general scheme. The product must be checked out according to the specific chemical background.  
**0= Nearly non-available, +++= Well done**

# PUD 105

Dance in the downpour – your style stays unspoiled.

## #What is it for?

High-performance **water column** properties with good **washing resistance** in addition to a **non-tackiness** surface, with a relatively **soft handle** and **less add-on**.



## #Where to use?

outdoor tents, raincoats, parachute parts, backpacks

## #How can you use it?

mostly air/ knife coating  
mechanical Foam  
fulard  
spray  
calendar

“ Revolutionize fabrics with unparalleled water resistance under high pressure. Our innovative formula creates a soft, transparent film without a matt finish, ensuring lasting non-tackiness and superior performance even after extensive washing. ”

## #Surfaces mastered so far:

polyamides, polyesters, polyacrylates, and their blends, ripstop, oxford

## #Additives:

inorganic fillers, wetting agents, deaerating agents, thickeners, anti-foaming agents, foaming agents, foam stabilizers, water-repellent finishing agents

## #Chemical properties:

aliphatic polyether-ester-based waterborne polyurethane dispersion

## #Methods:

ISO 811 , AATCC 22 , BS EN 20811 , ISO 6330 , EN ISO 9237

## #Combine with:

XR 101



# PUD 120

Stay cool and dry – perform at your peak from sunrise to sunset.

## #What is it for?

Delivers cutting-edge protection with **hydrophilic** polyurethane for non-stick, high-performance textiles with advanced **moisture management** and **high-wicking** properties.



## #Where to use?

athleisure wear, t-shirts, socks

## #How can you use it?

fulard

“ Delivers moisture management with unparalleled durability. This advanced hydrophilic solution offers rapid moisture wicking and is perfect for both high-performance sportswear and everyday attire with anti-pilling needs. Ensure lasting comfort and performance with PUD 120's versatile application. ”

## #Surfaces mastered so far:

cotton, cotton polyester blends, polyester, polyamid

## #Additives:

wetting agents, deaerating agents, anti-foaming agents, softeners

## #Chemical properties:

aliphatic polyether-based waterborne polyurethane dispersion

## #Methods:

ISO 6330, AATC 197, AATC 198, ASTM F3628-23, ISO 11092

## #Combine with:

XR 101



# PUD 127

Breathe in the festival air, with protection that's barely there.

## #What is it for?

Provides **transparent, medium-hard** coatings with **breathability**, combining **water resistance** for secure, functional fabrics and synthetic leather.



## #Where to use?

outdoor tents, automotive parts, clothes

## #How can you use it?

mostly air/ knife coating  
fulard  
calendar

“ Achieve semi-rigid coatings with partial air permeability for the latest in breathable coatings. Our solution offers not only resistance to water column pressures but also enhances flame resistance, marrying functionality with safety. ”

## #Surfaces mastered so far:

synthetic leather, cotton, polyester and polyamide

## #Additives:

inorganic fillers, wetting agents, deaerating agents, thickeners, anti-foaming agents, water-repellent finishing agents

## #Chemical properties:

modified aliphatic waterborne polyurethane dispersion with halogen-free flame retardant additive

## #Methods:

ISO 811, AATCC 22, BS EN 20811, ISO 6330, AATCC 118, NFPA 701

## #Combine with:

XR 101



# PUD 106\*

Heat up the night, not your gear. Safety meets transparency.

## #What is it for?

Flame-retardant-modified PUD, designed for **transparency** and **performance**. It's ideal for automotive parts and firefighter uniforms, ensuring safety and maintaining visibility without compromising on environmental standards.



## #Where to use?

Outdoor Tents, Automotive Parts, Clothes

## #How can you use it?

mostly air/ knife coating  
fulard  
calendar

“ Achieve medium-hard coatings with partial air permeability for the latest in breathable coatings. Our solution offers resistance to water column pressures and enhances flame resistance, marrying functionality with safety. ”

\*Under Development

## #Surfaces mastered so far:

synthetic leather, cotton, polyester and polyamide

## #Additives:

inorganic fillers, wetting agents, deaerating agents, thickeners, anti-foaming agents, water-repellent finishing agents

## #Chemical properties:

Modified aliphatic waterborne polyurethane dispersion with halogen-free flame retardant additive

## #Methods:

ISO 811, AATCC 22, BS EN 20811, ISO 6330, AATCC 118, NFPA 701

## #Combine with:

XR 101



# PUD 104

Rock on without wear and tear.

## #What is it for?

**chemical resistance**, **water resistance**, compatibility with flame retardant additives, **hard film** properties, **rubbery touch**, UV resistance, **abrasion resistance**, highly **transparent** and **glossy** coatings



## #Where to use?

outdoor tents, raincoats, parachute parts, backpacks, glass-fiber coatings

## #How can you use it?

Mostly air/ knife coating  
Fulard  
Spray  
Calendar

“ A versatile solution offering water resistance, chemical resilience due to its polycarbonate base, and compatibility with flame retardants. It provides a unique rubbery touch without matting, ideal for protective workwear and fiberglass surfaces. ”

## #Surfaces mastered so far:

cotton, polyester, polyamide, glass fiber

## #Additives:

inorganic fillers, wetting agents, deaerating agents, thickeners, anti-foaming agents, foaming agents, foam stabilizers, water-repellent finishing agents

## #Chemical properties:

aliphatic polycarbonate-based waterborne polyurethane dispersion

## #Methods:

ISO 811 , AATCC 22 , BS EN 20811 , ISO 6330 , AATTC 118

## #Combine with:

XR 101





# PUD 123

Don't let the rain kill your vibe.

## #What is it for?

On a **high denier fabric surface**, high-performance **water column** properties with a good **washing resistance** in addition to a **non-stick surface**, with a relatively **soft handle**.



## #Where to use?

outdoor tents, raincoats, parachute parts, backpacks

## #How can you use it?

mostly air/ knife coating  
mechanical foam  
fulard  
spray  
calendar

“ Sharing the elite characteristics of PUD 105 with the added ability to maintain water column integrity on high-denier fabrics. ”

## #Surfaces mastered so far:

polyamides, polyesters, polyacrylates, and their blends, ripstop, oxford

## #Additives:

inorganic fillers, wetting agents, deaerating agents, thickeners, anti-foaming agents, foaming agents, foam stabilizers, water-repellent finishing agents

## #Chemical properties:

aliphatic polyether-ester-based waterborne polyurethane dispersion

## #Methods:

ISO 811 , AATCC 22 , BS EN 20811 , ISO 6330 , EN ISO 9237

## #Combine with:

XR 101



# XR 101

Lasting through every encore, our strength supports your score.

## #What is it for?

When is **washing resistance** performance important, water repellent and **high water column value** needs, **abrasion**, and other physical performances are important.

## #Where to use?

Textile printing, coatings, synthetic leather

## #How can you use it?

coating formulations  
fulard applications

“Elevate fabrics with this durable washing aid that not only provides excellent washing support but also hardens the surface for an extended lifespan. Ideal for the textile industry’s move towards MEKO-free products.”

## #Surfaces mastered so far:

cotton, cotton polyester blends, polyester, polyamid

## #Additives:

inorganic fillers, wetting agents, deaerating agents, thickeners, anti-foaming agents, water-repellent finishing agents

## #Chemical properties:

MEKO-free aliphatic blocked polyisocyanate

## #Combine with:

All PUDs

Product	What is it for?	Surfaces	Applications	Chemical Properties	Coating Methods	Compatible Additives	Testing Methods
<b>PUD 105</b>	solvent-free, waterborne, soft film, transparent	polyamides, polyesters	outdoor tents, raincoats	Aliphatic polyether-ester-based polyurethane dispersion	Air/knife coating, Foam, Fulard, Spray, Calendar	Inorganic fillers, Agents, Foam stabilizers	ISO 811, AATCC 22, BS EN 20811, ISO 6330, EN ISO 9237
<b>PUD 120</b>	hydrophilic, thermo-reactive, wicking	cotton, nylon	sportswear, t-shirts, socks	Aliphatic polyether-based polyurethane dispersion	Fulard	Wetting agents, Deaerating agents, Softeners	ISO 6330, ASTM F3628-23
<b>PUD 106</b>	flame retardancy, transparency	synthetic leather	tents, automotive parts, firefighting clothes	Modified aliphatic polyurethane dispersion with halogen-free flame retardant	Air/knife coating, Fulard, Calendar	Inorganic fillers, Agents, Water-repellent finishers	ISO 811, AATCC 22, BS EN 20811, ISO 6330, AATCC 118, NFPA 701
<b>PUD 127</b>	breathability, medium hard coatings	synthetic leather	tents, automotive parts, clothes	Modified aliphatic polyurethane dispersion with halogen-free flame retardant	Air/knife coating, Fulard, Calendar	Inorganic fillers, Agents, Water-repellent finishers	ISO 811, AATCC 22, BS EN 20811, ISO 6330, AATCC 118, NFPA 701
<b>PUD 104</b>	chemical resistance, UV, abrasion, glossy finish	cotton, polyester	tents, raincoats, backpacks, fiberglass coatings	Aliphatic polycarbonate-based polyurethane dispersions	Air/knife coating, Fulard, Spray, Calendar	Inorganic fillers, Agents, Foam stabilizers	ISO 811, AATCC 22, BS EN 20811, ISO 6330, AATCC 118
<b>PUD 123</b>	solvent-free, waterborne, soft film	polyamides, polyesters	outdoor tents, raincoats	Aliphatic polyether-ester-based polyurethane dispersion	Air/knife coating, Foam, Calendar	Inorganic fillers, Agents, Foam stabilizers	ISO 811, AATCC 22, BS EN 20811, ISO 6330
<b>XR 101</b>	MEKO free, soft handle	various	Textile printing, coatings, synthetic leather	Aliphatic blocked polyisocyanate	Coating formulations, Fulard	All PUs, Inorganic fillers, Agents	-

*The information mentioned on the table is based on our current state of knowledge and to let you know about our products and their application possibilities.*

## Film Properties

Product Name	Type	Ionicity	Non-Volatile Content By Weight % (105°C)	Appearance	pH (23°C)	100% Modulus (MPa)	Tensile Strength at Break (MPa)	Elongation at Break (%)	MFFT	Light Fastness (8 scale)	Co-solvent	Key Properties
PUD 101	Aliphatic Polyester	Anionic	40±2	Milky Liquid	8±1	1,8	15	>1000	<0	7	free	high elasticity, transparent, gloss and very soft film properties, good piling and abrasion resistance for textile solutions with good hand feel
PUD 102	Aliphatic Polyester	Anionic	40±2	Milky Liquid	8±1	2,0	18	>1000	<0	8	free	good chemical resistancy in garment wash elasticity, a special polymer
PUD 103	Aliphatic Polyether	Slightly Cationic	27±1	Translucent Liquid	5±1	*	*	*	NDA	*	free	thermoreactive, self-crosslinking, low molecular weight, for hydrophilic finishes
PUD 104	Aliphatic Polycarbonate	Anionic	40±1	Milky Liquid	8±1	10	24	<300	<0	8	DPGDME	PVC free eco solution rubbery touch, high gloss and hard film properties
PUD 105	Aliphatic Polyether-ester	Anionic	43±2	Milky Liquid	8±1	2,5	15	>1000	<0	8	free	water column properties with washing resistance under hydrostatic water pressure, transparent coating, soft touch elastic film properties, foamable
PUD 120	Aliphatic Polyether	Weak Cationic	28±1	Translucent Liquid	4,7±0,4	*	*	*	NDA	8	free	easy to formulate with other finishing materials, thermo-reactive, self-crosslinking, low molecular weight, for hydrophilic finishes
PUD 121	Aliphatic Polyester	Anionic	40±2	Milky Liquid	8±1	2,0	18	>1000	NDA	8	free	gloss, shiny effect coating, elastic film properties, foamable
PUD 122	Aliphatic Polyester	Anionic	40±2	Milky Liquid	8±1	2,0	18	>1000	NDA	8	free	performance enhancer for anti-cracking properties on flatted design pigment printing, deep colored
PUD 123	Aliphatic Polyether-ester	Anionic	50±2	Milky Liquid	7,5±1	2,2	20	>1000	<0	8	free	water column properties for a hollow structured woven fabric under hydrostatic water pressure, transparent coating, soft touch elastic film properties
PUD 127	Aliphatic Polycarbonate-ester	Anionic	35±2	Milky Liquid	8±1	2,5	23	>650	<0	8	free	transparent medium hard coatings, enhance breathable water resistance coatings

Ref: ASTM D2369-07

Ref: ASTM D-1708-18 (films are dried @ RT) N/mm2

Ref: ASTM D2354  
Ref: ISO 105-B02

DPGDME: Dipropylene Glycol Dimethylenelether

MFFT: Minimum Film Formation Temperature

NDA: No Data Available

The afore-mentioned information is based on our present state of knowledge and shall inform on our products and their application possibilities.

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