5B
INTERNATIONAL

Vast Experience in Chemical Industry Polyol and Pre-polymer Manufacturing

INGENUITY

WWW.5BCHEMICALS.COM

AIM OF THE COMPANY

Our aim is to become a leading provider of polyurethane additives Worldwide. We strive to offer a diverse and trusted range of Polyurethane additive products including silicone stabilizers, catalysts with a focus on meeting the specialized processing and performance needs of our global customers. We aim to be at the fore front of innovation in the polyurethane industry. Through our own dedicated team of research and development experts, we continuously introduce new and creative solutions that enhance the world of polyurethane business. Our mission is to provide additives for polyurethane products that prioritize human safety, environmental sustainability and customer satisfaction. With advanced manufacturing technology and expertise, we aim to meet the demand for high-quality polyol and pre-polymer products, particularly for shoe sole grade applications as well as other segments such as slab stock, HR molded foam and rigid foam products.

5B Vision

To become the leading polyurethane brand in Pakistan and one of the top ten most preferred polyurethane brands in the world by the year 2025 through our developing technologies and innovative products.

5B MISSION

To become a company which prioritizes customer satisfaction by means of sustainable world-class quality and innovative products, having good grasp of customer needs and expectations, effectively conveying our wide selection of products to our business clientele and always being aware of ethical values and the environment.

POLYURETHANE FOR

FOOTWEAR

We manufacture polyurethane systems at various density and hardness values to be used in slippers and shoes sole manufacture. The development of these systems is based on usage areas and customer expectations. These systems are implemented by means of injection and moulding machines. Polyurethane has become the material of choice for slipper and shoe sole application in recent years due to advantages such as superior mechanical products, low cost and easy applicability.The system service is carried out with different components prepolymer isocyanate, polyol, catalyst and hardener colorization can be performed for custom applications.

OUR PRODUCTS

POLYURETHANE FOR FOOTWEAR

01 POLYURETHANE SYSTEM FOR SLIPPERS
- POLY TS-1014
- ISO TS-2009

02 POLYURETHANE SYSTEM FOR SAFETY SHOES
- POLY TS-404
- ISO TS-2009

03 POLYURETHANE SYSTEM FOR FLEXIBLE SHOES
- POP TS-1016
- ISO PE-2010

04 POLYURETHANE SYSTEM FOR INSOLE
- PE-AIR 130
- ISO PE-3070

05 POLYURETHANE SYSTEM FOR SOLE
- POLY TS-1048
- ISO TS-2009

06 POLYURETHANE SYSTEM FOR FOOTBEDS
- POLY TS-1093
- ISO TS-2039

POLYURETHANE FOR REGULAR SLIPPER SYSTEM

Poly TS-1014 / ISO TS-2009

These are polyurethane systems at various hardness and density values with high flex resistance which are used in slipper and shoe manufacturing.

COMPONENTS

ITEM	NAME OF COMPONENT	DESCRIPTION
A	POLY TS-1014	Polyester Polyol
B	ISO TS-2009	Diphenylmethane Diisocyanate
Additives	CATALYST TS-C1	Catalyst & Other Additvies

CATALYST & ADDITIVES

The adding amount of TS-C1 should be 3200 ± 200g / 220kg, the adding amount of hardener should be 600-1000g / 220kg

APPLICATION AREA

OPERATING CONDITIONS

Cream Time	Sec.	6-8
Tack Free Time	Sec.	50-60
Demoulding Time	Min.	02:30-3:00
Hardness	Sh A	45-50
Density	g/cm3	0.30-0.40

MECHANICAL PROPERTIES

Elongation at Break	%	250
Tensile Strength	Mpa	>5

POLYURETHANE FOR

SAFETY SHOES

Poly TS-404 / ISO TS-2009

Polyurethane Three-Component System

COMPONENTS

ITEM	NAME OF COMPONENT	DESCRIPTION
A	Poly TS-404	Polyester polyol
B	ISO TS-2009	Isocyanate
Additives	CATALYST TS-C1	Catalysts and other additives

SPECIFICATIONS		POLY TS-404	ISO TS-2009
Appearance at Room Temperature		Solid / Semi-solid	Liquid
Melting Point	°C	80	80
Solid Material Melting Point	hrs.	12	12
Melting Point	hrs.	24	24
Viscosity at 35°C	cps	4000 ± 500	200 ± 50
Specific Gravity at Work Temperature	g/cm3	1.17	1.18
Mixing Ratio	p.p.	100	56 - 60
Working Temperature	°C	50 - 60	50 - 60
Cream Time	sec.		6 - 10
“Thread” Time	sec.		22 - 35
Demoulding Time (*)	min		2 - 4
Moulds Temperature	°C		55 - 60
Free Density	g/cm3		0.45 - 0.55 / 0.90 ± 100

MECHANICAL PROPERTIES OF THE FOAM

Specific Gravity (UNI 10902)	g/cm3	1.00 – 1.20
Shore Hardness (DIN 53505)	Shore-A	65 – 70
Elongation at Break (UNI EN 12803)	%	> 550
Tensile Strength at Break (UNI EN 12803)	MPa	> 200
Tear Resistance (UNI EN 12771)	N/mm	> 15
Tear Resistance (ISO 34-1- Method C)	N/mm	> 35
Abrasion Resistance (UNI EN 12770)	mm2	< 50
Flexural Fatigue Resistance (UNI EN ISO 17707) at Temperature = + 20 °C (*)	mm	0
Flexural Fatigue Resistance (UNI EN ISO 17707) at Temperature = -15 °C (*)	mm	0
Elongation at Break (UNI EN 12803)	%	> 500
Tensile Strength at Break (UNI EN 12803)	mpa	> 150
Flexural Fatigue resistance (UNI EN ISO 17707) at Temp = +20°C (*)	mm	0

POLYURETHANE FOR

FLEXIBLE SHOES

POP TS-1016 / ISO PE-2010

Polyurethane Three-Component System

COMPONENTS

ITEM	NAME OF COMPONENT	DESCRIPTION
A	POP TS-1016	Polymeric Polyol
B	ISO PE-2010	Diphenylmethane Diisocyanate
Additives	CATALYST TS-C1	Catalyst & Other Additives

Catalysts & Additives

The adding amount of TS-C1 should be 3200±200g/220kg, the adding amount of hardener should be 7000g ±50g/220kg, the adding amount of water should be 500±100g/220kg.

SPECIFICATIONS		POP TS-1016	ISO PE-2010
Appearance at Room Temperature		Milky white liquid	Transparent Pure Liquid
Viscosity at 35 °C	cps	2500~3500	200~300
Specific Gravity at Work Temperature	g/cm3	1.14~1.18	1.18~1.20
Mixing Ratio	By weight	100	70 - 80
Working Temperature	°C	40 - 50	40 - 50
Cream Time	sec.	5~7	
“Thread” Time	sec.	24~30	
Demoulding Time (*)	min	3 - 4	
Moulds Temperature	°C	55 - 60	
Free Rise Density	g/cm3	0.2~0.25	
Molding density	g/cm3	0.4~0.45	

MECHANICAL PROPERTIES OF THE FOAM

Specific Gravity	**g/cm3**	**0.40~0.45**
Shore Hardness	A	45 – 55
Elongation at Break	%	≥ 200.0
Tensile Strength at Break	MPa	≥ 3.0
Tear Strength	KN/m	≥ 15.0
Flexural Fatigue Resistance 50.000 Flexures at Temperature = +25°C (*)	**NO BREAKING**	

POLYURETHANE FOR

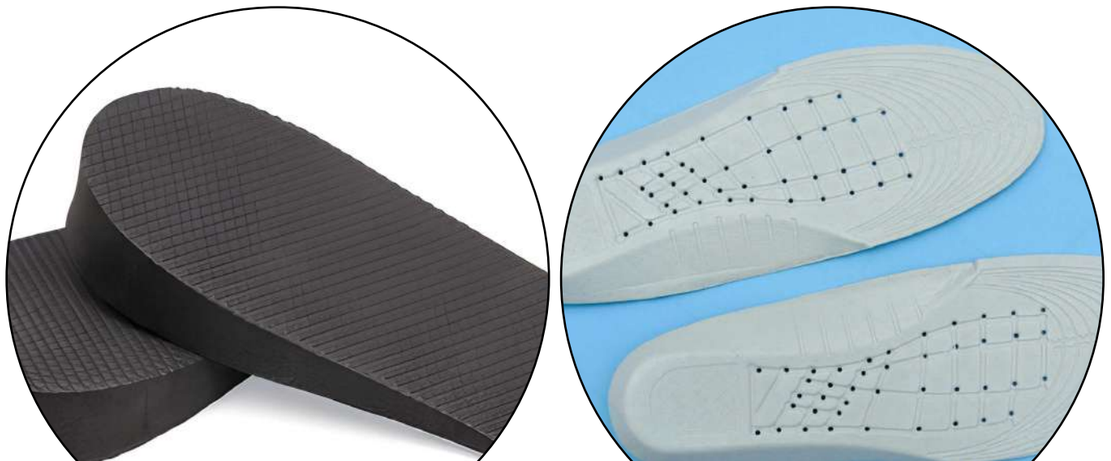
INSOLE

PE-Air 130 / ISO-PE-3070

COMPONENTS

ITEM	NAME OF COMPONENT	DESCRIPTION
A	PE-Air-130	Polyester polyol
B	ISO-PE-3070	Diphenylmethane Disocyanate
Additives	C1-Air-130	Catalysts and other additives

SPECIFICATIONS		PE-Air 130	ISO-PE-3070
Appearance at Room Temperature		Semi-Liquid	Semi-Liquid
Viscosity at 35°C	cps	3500 ± 500	200 ± 50
Specific Gravity at Work Temperature	g/cm3	1.17	1.18
Mixing Ratio	p.p.	100	56 - 60
Working Temperature	°C	40 - 45	30 - 35
Cream Time	sec.	6 - 10	
“Thread” Time	sec.	40 - 45	
Demoulding Time (*)	min	3 - 4	
Moulds Temperature	°C	55 - 60	
Free Density	g/cm3	0.13 ± 0.01	
Mould Density	g/cm3	0.20 - 0.25	



MECHANICAL PROPERTIES OF THE FOAM

Specific Gravity **(DIN 53420)**	**g/cm3**	**0,25 - 0,30**
Shore Hardness **(DIN 53505)**	A	20 – 25
Elongation at Break **(DIN 53504)**	%	> 250
Tensile Strength at Break **(DIN 53504)**	Kg/cm2	> 10
Tear Resistance **(DIN 53507)**	Kg/cm	1,5 ± 0,5
Tear Resistance **(ASTM D 624 T.B)**	Kg/cm	6 ± 0,5
Split Tear **(ASTM D-3574)**	Kg/cm	1,5 - 1,7

POLYURETHANE FOR

HARD SOLE SHOES

Poly TS-1048 / ISO TS-2009

Polyurethane Three-Component System

COMPONENTS

ITEM	NAME OF COMPONENT	DESCRIPTION
A	COMPONENTS	Polymeric polyol
A1	ISO TS-2009	Diphenylmethane Disocyanate
Additives	Catalyst TS-C1	Catalyst & Other Additives

SPECIFICATIONS		POLY TS-1048	ISO TS-2009
Appearance at Room Temperature		Milky white liquid	Transparent Pure Liquid
Viscosity at 35 °C	cps	2500~3500	200~300
Specific Gravity at Work TemperaturePoint	g/cm3	1.14~1.18	1.18~1.20
Mixing Ratio	By weight	100	120 - 128
Working Temperature	°C	50 - 60	50 - 60
Cream Time	sec.	5~7	
“Thread” Time	sec.	24~30	
Demoulding Time (*)	min	3 - 4	
Moulds Temperature	°C	55 - 60	
Free Rise Density	g/cm3	0.15~0.2	
Molding Density	g/cm3	0.30~0.40	

MECHANICAL PROPERTIES OF THE FOAM

Specific Gravity **(DIN 53420)**	**g/cm3**	**0.30~0.40**
Shore Hardness **(DIN 53505)**	A	70 – 80
Elongation at Break	%	≥ 200.0
Tensile Strength at Break	MPa	≥ 3.0
Tear Strength	KN/m	≥ 15.0
Flexural Fatigue Resistance **(DIN 53543)** 30.000 Flexures at Temperature = +20°C (*)	**NO BREAKING**	

POLYURETHANE FOR

Footbeds

POLY TS-1093 / ISO TS-2039

Polyurethane Three-Component Compound

COMPONENTS

ITEM	NAME OF COMPONENT	DESCRIPTION
A	POP TS-1093	Polymeric Polyol
B	ISO ts-2039	Diphenylmethane Diisocyanate
Additives	CATALYST C - 3001	Catalyst & Other Additives

Catalysts & Additives

The adding amount should be 4500±500/220kg

SPECIFICATIONS		POLY TS-1093	ISO TS-2039
Appearance at Room Temperature		Milky white liquid	Transparent Pure Liquid
Viscosity at 35 °C	cps	600~800	200~300
Specific Gravity at Work Temperature	g/cm3	1.13~1.15	1.18~1.20
Mixing Ratio	By weight	100	50 - 60
Working Temperature	°C	40 - 50	40 - 50
Cream Time	sec.	12~15	
“Thread” Time	sec.	24~30	
Demoulding Time (*)	min	4 - 6	
Moulds Temperature	°C	55 - 60	
Free Rise Density	g/cm3	0.15~0.18	
Molding density	g/cm3	0.35~0.40	

MECHANICAL PROPERTIES OF THE FOAM

Shore Hardness	A	15 – 20
Elongation at Break	%	≥ 400.0
Tensile Strength at Break	MPa	≥ 1.2
Tear Strength	KN/m	≥ 8.0
Compression	σ	11.1%
Flexural Fatigue Resistance 50.000 Flexures at Temperature = +25°C (*)	**NO BREAKING**	

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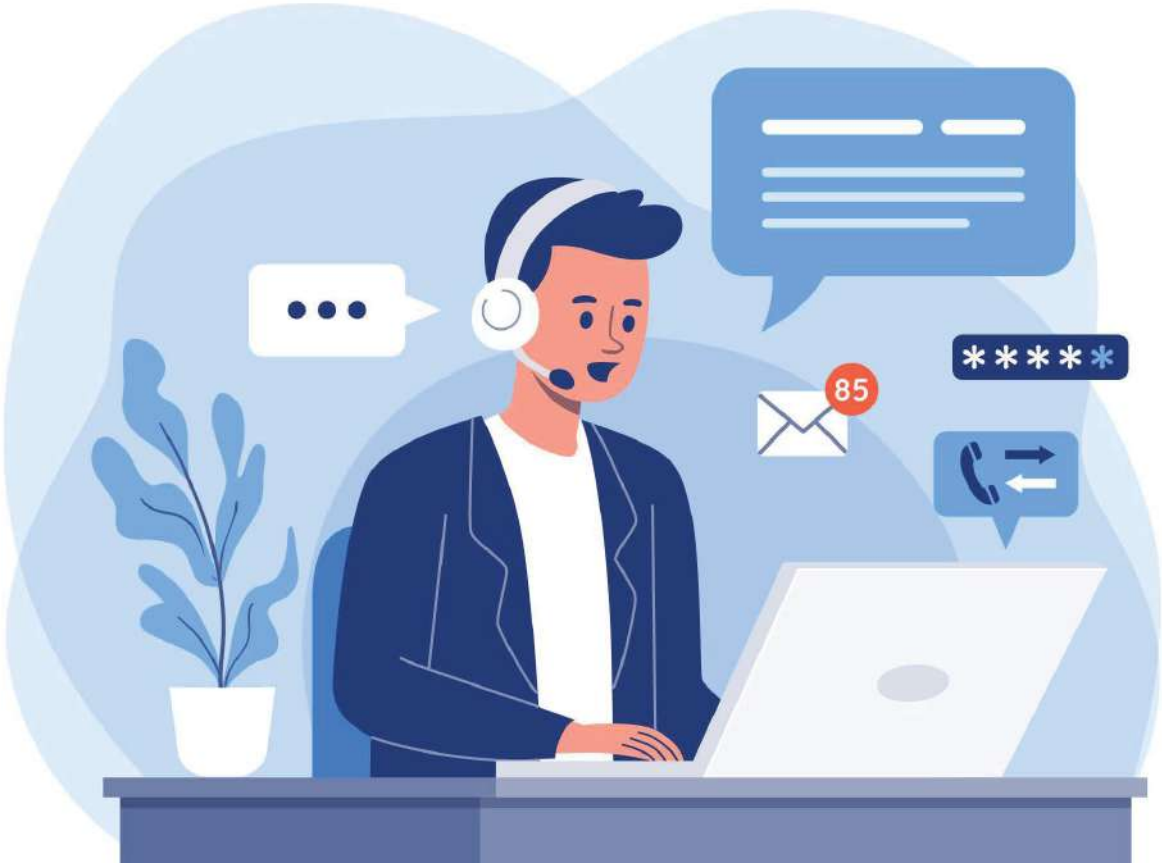
LET'S GROW
TOGETHER
THANK YOU



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