MAXI INDUSTRIAL CHEMICAL FACE SHIELD

PRODUCT DESCRIPTION

- Flip up brow guard with adjustable fastening side knobs.
- Headgear with automatic locking ratchet adjustment system.
- Tricot cushion sweatband.
- 3 Stage adjustment on brow guard resting position.
- 5 Point adjustment on crown strap.
- 6 point lense attachment.
- Fits 1mm PETG chemical resistant wide flare lens.

TECHNICAL SPECIFICATIONS

- One size fits all: 50cm - 64cm.
- 330g assembled weight.
- Automatic locking ratchet adjustment system.
- Flip up brow guard with 3 point adjustment on resting position.
- Materials: Polypropylene brow guard, side adjustments, gear housing and gears. HDPE headband. Acetyl side screws. PETG chemical resistant lense
- Colours: Royal blue & natural.

PACKAGING

- 10 assembled with lenses per clear bag 750mm x 550mm x 240mm x 3.3kg

INSTRUCTIONS FOR USE

Place headgear on head with the ratchet facing the back. Push ratchet in and turn clockwise to tighten. Push ratchet in and turn anti-clockwise to loosen. To adjust the brow guard resting angle, push the tabs located in the inside left and right of the brow guard inwards till locating pin is free. Then release the tabs into the desired positioning hole. To adjust brow guard swivel action tighten or loosen side knobs on either side. To replace the lens, turn each retaining clip to a horizontal position. Turn each retaining clip to a vertical position once a new lens is fitted.

WARNING

Read all instructions and warnings before use. Failure to follow could result in serious personal injury or death.

This face shield lens only provides limited protection to the user and does not replace machine-guards/screens or covers and should be worn with safety spectacles or goggles. Use only approved lenses suited to the application. A risk assessment must be carried out by a competent person to determine hazardous conditions and determine if the protective equipment is suited to the application. This lens offers limited protection against chemical concentrations/solutions. Please refer to guide for chemical resistance. Do not use for brazing, welding or high intensity light protection. Do not use in high temperatures areas such as furnaces. Do not use this lense for protection against laser or gamma light sources or where optical hazards exist.

Examine the complete lense and mounting. Replace when cracked, scratched, marked, pitted, damaged or when clear vision is compromised. Clean surfaces using mild soapy water, rinse off well, air dry or pat with a soft cloth. Do not dry clean the lens, this will cause fine scratches . Do not use thinners or any other solvent based cleaning agents. This lens should not be used for sporting/recreational/paint-ball/war-games or any other such activity. If in doubt on any of the above, consult with safety officer/supervisor/supplier/manufacturer before use.

PETG CHEMICAL RESISTANCE GUIDE

CONTENTS	CONCENTRATION	RESISTANCE	
Resistance: 1 = stable, 2 = conditionally stable, 3 = unstable		20° C	50° C
Acetaldehyde	40%	3	3
Acetaldehyde + acetic acid	90/10%	-	-
Acetic acid	10%	1	1
Acetic acid	50%	-	-
Acetic acid	5%	1	1
Acetic acid (glacial acetic acid)	90%	3	3
Acetic acid ester	100%	3	3
Acetone		3	3
Acetonenitrile		-	3
Acid, battery	38%	3	3
Acrylic acid ethyl ester	100%	-	-
Adipic acid	saturated	-	-
Allyl alcohol	96%	1	-
Alum		1	1
Aluminium chloride	10%	1	1
Aluminium chloride	solid	-	-
Aluminium chloride	saturated	-	-
Aluminium chloride	aqueous	1	1
Aluminium nitrate	aqueous	1	1
Aluminium sulfate	10%	1	1
Aluminium sulfate	saturated	-	-
Ammonia	25%	1	3
Ammonia liquor	any	1	3
Ammonium chloride	aqueous	1	1
Ammonium fluoride	saturated	1	1
Ammonium fluoride	aqueous	1	1
Ammonium nitrate	10%	1	1
Ammonium nitrate	saturated	1	1
Ammonium nitrate	aqueous	1	1
Ammonium sulfate	10%	1	1
Ammonium sulfate	saturated	1	1
Ammonium sulfate	aqueous	1	1
Ammonium sulfide	any	-	-
Ammonium sulfide	aqueous	-	-
Amyl acetate (Pentylacetate)		1	2
Amyl alcohol		1	-
Aniline		-	-
Aniline chlorohydrate	saturated	-	-
Antifreeze (Ethyleneglycol)		1	-
Antimony trichloride	90%	-	-
Aqua regia		3	3
Aromatic acid		-	-
Aromatic acids	0,5	-	-
Arsenic acid		-	-
Arsenic acid	aqueous	-	-
Arsenic acid hydride		-	-
Beer		1	-
Benzene		3	3
Benzoic acid	saturated	1	-
Benzoic acid	aqueous	1	-
Benzyl benzoate		-	-
Borax	any	1	1
Boric acid	10%	1	-
Boric acid	aqueous	1	-
Brake fluid		-	-
Brake fluid DOT 3		1	1
Brandy		1	-
Brandy		-	-
Bromic vapours		3	3
Bromine		3	3
Butane	techn. pure	1	-
Butanol	techn. pure	1	-
Butinediol	10%	1	-
Butyl acetate		2	-
Butyric acid		-	-
Calcium chloride	aqueous	1	-
Calcium hypochlorite	aqueous	2	-
Calcium hypochlorite	saturated	2	-
Calcium nitrate	50%	1	1
Calcium nitrate	aqueous	1	1
Carbon dioxide, dry	techn. pure	1	1
Carbon dioxide, umid	techn. pure	1	1
Carbon disulfide		-	-
Carbon tetrachloride		1	3

PETG CHEMICAL RESISTANCE GUIDE

CONTENTS	CONCENTRATION	RESISTANCE	
Carbonic acid	saturated	1	1
Caustic potash	30%	3	3
Caustic potash	50%	3	3
Caustic potash	aqueous	3	3
Caustic potash	10%	3	3
Caustic potash	50%	3	3
Caustic soda		3	3
Chloramine	diluted	-	-
Chloric methyl		-	-
Chlorinated water		3	3
Chlorine	10 % wet	3	3
Chlorine	97%	3	3
Chlorine gas		3	3
Chloroacetic acid		3	3
Chloroacetic acid (mono)	50%	3	3
Chloroacetic acid (mono)	techn. pure	3	3
Chlorobenzene		1	3
Chlorsulphonic acid	techn. pure	3	3
Chromic acid	10%	2	-
Chromic acid	20%	3	3
Chromic acid	50%	3	3
Chromic acid	aqueous	3	3
Chromic alum	saturated	1	1
Chromic sulphuric acid	pur	3	3
Citric acid	10%	1	2
Citric acid	10%	1	2
Citric acid	50%	-	-
Citric acid	saturated	-	-
Citric acid	aqueous	-	-
Common salt		1	1
Common salt	aqueous	1	1
Copper sulphate	aqueous	1	1
Crude oil	100%	1	-
Cyanogen potash	saturated	-	-
Cyclanone		1	1
Cyclohexane		1	-
Cyclohexanol	techn. pure	-	-
Cyclohexanone	techn. pure	3	3
Dekalin (Decahydronaphtalin)	100%	2	-
Detergent solution		1	1
Dextrine		1	1
Dextrine	aqueous	1	1
Diaethyl ether		-	-
Dibutyl phthalate (DBP)		1	-
Dichloroethylene	techn. pure	3	3
Diesel fuel		1	1
Diesel oil	100%	1	1
Diglycolic acid	30%	-	-
Diglycolic acid	aqueous	-	-
Dimethyl formamide		1	-
Dioxane		1	-
Drinking water		-	-
Emissions, carbon dioxide	low	1	1
Emissions, hydrochloric	any	-	-
Emissions, hydrofluoric	low	-	-
Emissions, nitrous	low	-	-
Emissions, sulfurdioxide	low	-	-
Emissions, sulfuric acid	any	-	-
Engine oil		1	1
Ethanol	50%	1	1
Ethanol	96%	1	1
Ethyl acetate		2	3
Ethyl alcohol	40%	1	1
Ethyl alcohol	96%	1	1
Ethyl chloride		3	3
Ethylene glycol		1	-
Fat, vegetable		1	-
Fatty acid	techn. pure	1	-
Fertilizer salts	saturated	1	-
Fluorhydric acid	40%	-	-
Fluorhydric acid	70%	-	-
Fluorhydric acid	100%	3	3
Fluorhydric acid	4%	3	3
Fluorhydric acid	50%	3	3
Fluorine		3	3

PETG CHEMICAL RESISTANCE GUIDE			
CONTENTS	**CONCENTRATION**	**RESISTANCE**	
Fluorine	dry	3	3
Fluosilicic acid		-	-
Formaldehyde	10%	1	-
Formaldehyde	40%	1	-
Formic acid	3%	1	-
Formic acid	50%	-	-
Formic acid	98-100 %	-	-
Freon 11		-	-
Fruit juices		1	-
Fruit tree carbolineum	aqueous	-	-
Fruit wine		1	1
Gelatine	any	1	1
Gelatine	aqueous	1	1
Glacial acetic acid		3	3
Glucose	any	1	1
Glue (animal glue, gelatine)	any	1	1
Glycerin	any	1	-
Glykol		1	-
Grape sugar	any	1	1
Grape sugar	aqueous	1	1
Hexane		1	-
Hexane, -n		1	-
Hydorcyanic acid	aqueous	-	-
Hydrazine	10%	-	-
Hydrazine hydrate		-	-
Hydrobromic acid	40%	3	3
Hydrobromic acid	50%	3	3
Hydrobromic acid	diluted	2	-
Hydrochloric acid	1-5 %	1	1
Hydrochloric acid	20%	2	-
Hydrochloric acid	35%	3	3
Hydrochloric acid	conc.	3	3
Hydrocyanic acid	techn. pure	-	-
Hydrofluosilicic acid	32%	3	3
Hydrogen fluoride	anhydrous	3	3
Hydrogene chloride gas		3	3
Hydrogene peroxide	3%	-	-
Hydrogene peroxide	30%	-	-
Hydrosulphide	saturated	1	-
Hydroxylamine sulfate	any	-	-
Iodine tincture		-	-
Iron chloride	aqueous	-	-
Isooctane	techn. pure	1	-
Isopropyl alcohol	techn. pure	-	-
Kerosene		1	-
Kerosene		1	1
Ketone		-	-
Lactic acid	3%	1	-
Lactic acid	80%	-	-
Lactic acid	85%	-	-
Lactic acid	aqueous	1	-
Lead acetate	aqueous	1	1
Lead-(II)-acetate		1	1
Linseed oil	techn. pure	1	-
Liqueurs		1	-
Lubricating oil		1	1
Magnesium sulphate	saturated	1	1
Magnesium sulphate	aqueous	1	-
Magnesiumchloride	aqueous	1	-
Maleic acid	saturated	-	-
Maleic acid	aqueous	-	-
Mercury	pur	1	1
Mercury chloride	aqueous	1	1
Methanol		1	-
Methoxybutanol	100%	-	-
Methyl acetate	techn. pure	2	-
Methyl alcohol (methanole)		1	-
Methyl ethyl ketone		3	3
Methylen chloride		3	3
Milk		1	1
Molasses		1	-
Molasses wort		1	1
Mowilith D		1	1
Naphthaline	techn. pure	-	-
Naphthaline	100%	-	-

PETG CHEMICAL RESISTANCE GUIDE			
CONTENTS	**CONCENTRATION**	**RESISTANCE**	
Nitric acid	100%	3	3
Nitric acid	1-10 %	1	1
Nitric acid	50%	1	1
Nitric acid	66%	3	3
Nitric acid	70%	3	3
Nitrous dilution		-	-
Nitrous gases	diluted	-	-
Oil (vegetable) and animal fats		1	-
Oil, essential		-	-
Oleic acid	techn. pure	1	-
Oleum	10 % SO3	3	3
Oleum vapours	low	-	-
Olive oil		1	-
Oxalic acid		-	-
Oxalic acid	aqueous	1	1
Ozone		-	-
Palm kernel oil acid	100%	-	-
Palm-oil		1	-
Perchloric acid		3	3
Petrol		1	1
Petrol 10% ethyl alcohol		2	-
Petrol 10% methanol		2	-
Petrol ether		-	-
Petrol normal		2	-
Petrol normal unleaded		2	-
Petrol Super unleaded		2	-
Petroleum		1	1
Phenol	100%	3	3
Phenol	10%	3	3
Phosgene	techn. pure	-	-
Phosgene	liquid	-	-
Phosgene	gaseous	-	-
Phoshoric acid	1-5 %	1	-
Phoshoric acid	aqueous 20%	-	-
Phoshoric acid	30%	-	-
Phoshoric acid	85%	-	-
Phosphorus pentoxide	techn. pure	-	-
Photographic developers		1	-
Photographic developers		-	-
Photographic emulsion	any	-	-
Photographic fixing bath		-	-
Phthalilc acid	saturated	1	-
Plasticiser, DBS		1	1
Plasticiser, DOP		1	1
Polish remover		-	-
Potash	saturated	1	1
Potash	aqueous	1	1
Pottassium bichromate	saturated	2	-
Pottassium borate	10%	1	1
Pottassium borate	aqueous	1	1
Pottassium bromate	saturated	-	-
Pottassium bromate	aqueous	-	-
Pottassium bromide	any	1	1
Pottassium chloride	aqueous	1	-
Pottassium chromate	saturated	-	-
Pottassium chromate	aqueous	-	-
Pottassium hydroxide	50%	3	3
Pottassium hydroxide	conc.	3	3
Pottassium hydroxide	aqueous	3	3
Pottassium hydroxide	10%	3	3
Pottassium hydroxide (Caustic pottash)	1%	3	3
Pottassium nitrate	50%	1	1
Pottassium nitrate	aqueous	1	1
Pottassium permanganate		1	1
Pottassium permanganate	aqueous	1	1
Pottassium sulphate	any	-	-
Propane	liquid	1	-
Propane	gaseous	1	-
Propanoic acid	50%	-	-
Propanoic acid	techn. pure	-	-
Propyl alcohol		1	-
Propyl alcohol	100%	1	-
Pyridine		-	-
Roasting gases	any	-	-
Sea water		1	1

PETG CHEMICAL RESISTANCE GUIDE

CONTENTS	CONCENTRATION	RESISTANCE	
Silicic acid	any	1	1
Silicone oil		1	-
Silver nitrate		1	1
Silver nitrate	aqueous	1	1
Silver salt	saturated	1	1
Soap solution	any	1	1
Sodium carbonate		-	-
Sodium carbonate		-	-
Sodium carbonate	saturated	-	-
Sodium carbonate	aqueous	1	-
Sodium carbonate	saturated	-	-
Sodium carbonate	aqueous	1	-
Sodium chloride	any	1	1
Sodium chloride	aqueous	1	1
Sodium fluoride	saturated	1	1
Sodium hydroxide	1%	2	2
Sodium hydroxide	50%	3	3
Sodium hydroxide	30%	3	3
Sodium hydroxide	45%	3	3
Sodium hydroxide	60%	3	3
Sodium hydroxide	aqueous	3	3
Sodium hypochlorite		2	2
Sodium hypochlorite	12 % Cl	2	2
Sodium hypochlorite	15%	2	2
Sodium hypochlorite	50%	3	3
Sodium hypochlorite	saturated	3	3
Sodium hypochlorite	diluted	2	2
Sodium hypochlorite	aqueous	2	2
Sodium hypochlorite solution	20%	3	3
Sodium hypochlorite solution	50%	3	3
Sodium hypochlorite solution	diluted	2	-
Sodium nitrate	saturated	1	1
Sodium nitrate	aqueous	1	-
Sodium silicate	aqueous	1	-
Sodium silicate	any	1	-
Sodium sulfide	aqueous	1	-
Spindle oil		1	-
Starch dilution	any	1	1
Starch sirup		1	1
Stearic acid	crystals	1	-
Styrene	100%	1	1
Succinic acid	50%	-	-
Succinic acid	saturated	-	-
Succinic acid	any	-	-
Sugar sirup		1	1
Sulphur	techn. pure	1	1
Sulphur dioxide	humid	-	-
Sulphur dioxide	liquid	-	-
Sulphur trioxid		3	3
Sulphuric acid	1-6 %	-	-
Sulphuric acid	20%	-	-
Sulphuric acid	40%	3	3
Sulphuric acid	60%	3	3
Sulphuric acid	80%	3	3
Sulphuric acid	95%	3	3
Sulphuric acid	smoking	3	3
Tallow	techn. pure	1	-
Tannic acid		-	-
Tanning extracts	usual	-	-
Tanning extracts, vegetable	usual	-	-
Terpentine		1	1
Terpentine oil		1	-
Tetralin		1	-
Thionyl chloride	techn. pure	-	-
Thionyl chloride		-	-
Toluene		1	-
Transformer oil	100%	1	1
Trichlorethylene	100%	3	3
Triethanol amine	techn. pure	1	-
Urea	aqueous	1	-
Urea (carbamide)		1	-
Urine		1	-
Waste water each kind (without organic solvents)		-	-
Water		1	1
Water, distilled/desalted		1	1

PETG CHEMICAL RESISTANCE GUIDE			
CONTENTS	**CONCENTRATION**	**RESISTANCE**	
Wax alcohol	techn. pure	1	-
Wine vinegar		1	1
Wine vinegar		1	1
Wine vinegar		-	-
Wine vinegar	aqueous	-	-
Wines		1	1
Xylene		-	-
Yeast	any	1	-
Zinc chloride	10%	-	-
Zinc chloride	aqueous	-	-
Zinc sulphate	10%	1	1
Zinc sulphate	aqueous	1	1

HIPEX® A

THE BEST FOR FLAT AND COLD BENDING APPLICATIONS

HIPEX® A is a premium quality amorphous polyethylene terephthalate (A-PET). **HIPEX® A** is the best choice for flat and cold bending applications. **HIPEX® A** shows good printability with UV curing inks and is flame retardant rated "difficult-to-ignite" as well as suitable for food applications. Moreover, it is extremely impact resistant also at temperatures down to -20°C and shows excellent outdoor durability in the variant with UV protection.

HIPEX® A sheets offer a unique combination of excellent properties and occupy an unrivalled ecological position amongst fully transparent and translucent sheet materials.

CHARACTERISTICS

- 100% recyclable within its own waste category
- Tough and hard with high impact strength also at temperatures down to -20°C
- Impeccable optical properties with a light transmission of nearly 90% for non-tinted types
- Good outdoor durability in the variant with UV protection
- Flame retardant rated "difficult-to-ignite"
- Very high chemical resistance
- Easy and fast to process
- Good printability thanks to optimal adhesion of UV curing inks

APPLICATIONS

- Flexible poster covers
- Printed translucent signs
- Small to medium sized displays
- Slatwall magazine racks
- Cold food storage elements
- Protective glazing for machinery

PROCESSING

- Printing
- Laminating
- Sawing
- Drilling
- Thread cutting
- Milling
- Laser and water jet cutting
- Polishing
- Stamping/Cutting
- Bonding
- Cold bending
- Tempering

GENERAL			
Property	Method	Unit	HIPEX® A
Density	DIN EN ISO 1183-1	g/cm³	1.33
Surface hardness	ISO 868	Shore D	50
MECHANICAL			
Property	Method	Unit	HIPEX® A
Flexural modulus	EN ISO 178	MPa	2500
Tensile strength	DIN EN ISO 527-2	MPa	>55
Coefficient of linear expansion	DIN EN ISO 75-2	mm/(m·K)	0.05
Impact strength – Charpy (unnotched)	DIN EN ISO 179-1	kJ/m²	NB (no break)
OPTICAL			
Property	Method	Unit	HIPEX® A
Light transmission (3 mm clear transparent)	DIN 5036	%	>86
THERMAL			
Property	Method	Unit	HIPEX® A
Max. service temperature		°C	65
OTHERS			
Property	Method	Unit	HIPEX® A
Fire classification	EN 13501-1	Classification	B-s1, d0

Note: These technical data of our products are typical ones; the actually measured values are subject to production variations.

HIPEX® G

THE PERFECT MATERIAL FOR VACUUM FORMING AND THERMOFORMING

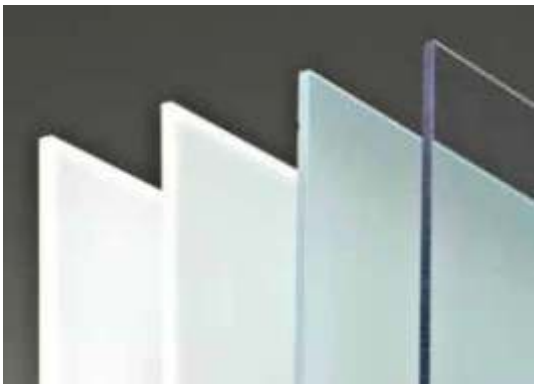
HIPEX® G are extruded polyethylene terephthalate glycol (PET-G) sheets, which are characterized by good optical properties, easy processability and very good impact resistance. Moreover, **HIPEX® G** sheets are flame retardant rated "difficult-to-ignite", are suitable for food applications and can be printed with UV curing inks.

Especially for applications in the field of vacuum forming and thermoforming, **HIPEX® G** sheets are the best choice as they don't crystallize and can be processed without pre-drying (time and energy saving). Thanks to its easy formability, the material offers designers and fabricators various possibilities, from simple shapes to complex constructions.

The sheets are available with or without UV protection and in addition to the clear and opal white versions also in a variety of colours and design patterns.

CHARACTERISTICS

- Good optical properties and a brilliant surface
- Easy to fabricate
- Excellent for vacuum forming and thermoforming without pre-drying (time and energy saving)
- Exceptional low temperature performance
- Very good chemical resistance
- Very high impact resistance
- Easy to recycle
- Flame retardant rated "difficult-to-ignite"
- Good printability thanks to optimal adhesion of UV curing inks



APPLICATIONS

- Bus shelters
- Poster glazing
- Machine guards
- Medical appliance packaging
- Displays and signs for interior and exterior use
- Bicycle safety helmets
- Lighting controllers for hazardous areas
- Back-printed translucent signs
- Three-dimensional POS/POP displays

PROCESSING

- Printing
- Laminating
- Sawing
- Drilling
- Thread cutting
- Milling
- Laser and water jet cutting
- Polishing
- Stamping/Cutting
- Bonding
- Hot and cold bending
- Thermoforming
- Tempering

GENERAL			
Property	Method	Unit	HIPEX® G
Density	DIN EN ISO 1183-1	g/cm³	1.27
Rockwell hardness	EN ISO 2039-1 / ASTM D-785	M-Scala	105
MECHANICAL			
Property	Method	Unit	HIPEX® G
Flexural Modulus	DIN EN ISO 178	MPa	1900
Flexural Strength	DIN EN ISO 178	MPa	70
Tensile Modulus	DIN EN ISO 527-2	MPa	2000
Tensile Strength	DIN EN ISO 527-2	MPa	50
Elongation	DIN EN ISO 527-2	%	60
Impact strength – Izod (notched)	DIN EN ISO 180/4A	kJ/m²	11.5
Impact strength – Charpy (notched)	DIN EN ISO 179-1/1eA	kJ/m²	7
Impact strength – Charpy (unnotched)	DIN EN ISO 179-1	kJ/m²	NB (no break)
OPTICAL			
Property	Method	Unit	HIPEX® G
Light transmission (3 mm clear transparent)	DIN EN ISO 13468-1	%	88
Refractive index	DIN EN ISO 489	n_D^{20}	1.57
Haze	ISO 14782 / ASTM D1003	%	<1
Solar energy transmittance g-value	DIN EN 410	%	3 mm 82.4 / 10 mm 79.4
THERMAL			
Property	Method	Unit	HIPEX® G
VICAT -Temperature (method B50)	DIN EN ISO 306	°C	70
Heat Deflection Temp. (A/B)	DIN EN ISO 75-2	°C	72/68
Specific Heat Capacity	DIN EN ISO 11357-4	J/gK	1.1
Coefficient of linear thermal expansion	DIN 53752 / ISO 11359-2	mm/m °C	0.068
Thermal conductivity	DIN 52612 / DIN EN ISO 22007-1	W/mK	0.20
Degradation temperature		°C	>280
Max. service temperature continuous use		°C	60
Max service temperature short term use		°C	70
Forming temperature		°C	120 – 160
ELECTRICAL			
Property	Method	Unit	HIPEX® G
Dielectric constant (100 Hz)	IEC 250 / DIN 53483-2		2.6
Volume Resistivity	IEC 60093 / DIN EN 62631-1-3-1 ASTM D257	Ω.cm	$>10^{15}$
Surface Resistivity	IEC 60093 / DIN EN 62631-1-3-2 ASTM D257	Ω	$>10^{16}$
Dielectric strength	IEC 60243-1 / ASTM D149	kV/mm	16
Dissipation factor (50 Hz)	IEC 250 / DIN53483-2		0.01
OTHERS			
Property	Method	Unit	HIPEX® G
Fire performance (building product) up to 10 mm	DIN 4102-1	Technical Approval	B1
Fire performance up to 10 mm	DIN EN13501-1	Classification	B-s1, d0
Biocompatibility (skin contact)	DIN EN 10993-5	Classification	not cytotoxic

Note: These technical data of our products are typical ones; the actually measured values are subject to production variations.