

**Intelligent
Solutions for
Flame Retardant
Thermoplastics**

Achieving Excellent Fire Protection with eurotec® Flame Retardant Engineering Thermoplastics

Due to miniaturization and increasing energy use in electric and electronic equipment, and rising levels of consumable and durable products in our homes, offices, and vehicles, we face an increasing potential of fire hazard.

As the fire risk increases, understanding the mechanism becomes more crucial. Fire starts with an ignition and spreads if it is not extinguished. Once the temperature rises up to critical point (flash over), all surrounding materials will ignite and endanger life.

More and more thermoplastics are used because of their easy processing, design freedom, low weight and high mechanical strength; most of them are inherently flammable which will contribute to the fire if not modified properly.

Flame Retardancy

Flame retardants are chemicals added to thermoplastics to minimize the risk of a fire starting in case of contact with a heat source or an electrical fault. In case of ignition, the flame retardant will slow down combustion and often prevent the fire from spreading to other items. Therefore flame retardant thermoplastics will interfere with the potential fire hazard by resisting ignition and delaying or preventing its propagation by extinguishing flames.

Flame retardant thermoplastics have various mechanisms which are;

- ◆ Gas phase; the additives decompose and suppress supply of oxygen
- ◆ Solid phase; the additives generate an isolative char layer which act as a barrier for oxygen and heat
- ◆ Cooling; the additives release water in order to cool the surface and extinguish flames.

Developing and formulating flame retardant thermoplastic compounds requires great expertise and know-how. Following parameters should be taken into consideration;

- ◆ Combustibility
- ◆ Ignitability
- ◆ Flame spread
- ◆ Heat release
- ◆ Smoke development
- ◆ Fire gas toxicity

Industry Specific Solutions

eurotec® is an independent compounder of engineering thermoplastics that creates and offers intelligent solutions based on innovative products and tailor made services.

eurotec® combines state of the art technology with high level of know-how and a dynamic, service oriented team, developing high quality products for applications where flame retardancy is needed.

When safety is the key factor, eurotec® offers a full range of flame retardant thermoplastic compounds according to a variety of test standards;

- ◆ Electric/Electronic and Household Appliances
(UL 94, UL 746, IEC 60695, IEC 60112, ISO 4589)
- ◆ Building
(EN 13501, EN 13823, EN 11925, EN 9239, BS 476, DIN 4102)
- ◆ Transportation
(ISO 3795, BS 6853, NF F16-101, FMVSS 302, FAR 25.853)
- ◆ Upholstered furniture and textiles
(BS 5852, DIN 4102)

Glow Wire
Flammability Index
IEC 60695-2-12

Glow Wire
Ignition Temperature
IEC 60695-2-13



Global Compliance with Environmental Regulations

Halogen Free Flame Retardant Thermoplastic Compounds

There are several restrictions on flame retardant compounds. European Union's RoHS (Restriction of Hazardous Substances) Directive is the major regulation which is also followed by many countries around the world. Although RoHS directive does not ban all halogenated flame retardants, current trend leads to more environmentally friendly solutions.

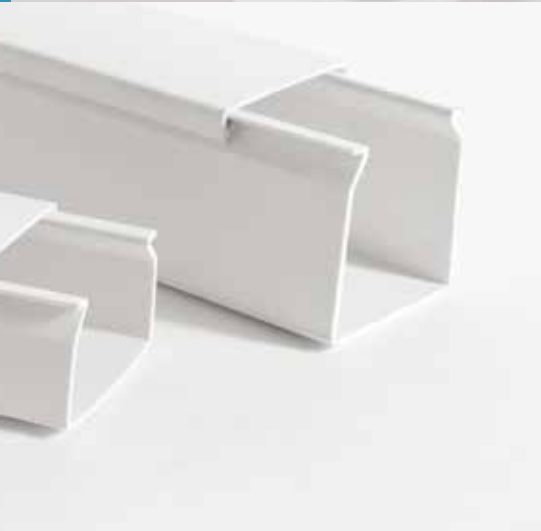
eurotec® has developed a comprehensive range of halogen free flame retardant compounds providing standard grades and customized solutions. Halogen free flame retardant grades from eurotec® both fulfill all fire resistance needs and give a global compliance with environmental regulations.

Tecomid® NB30 NL FA50 QL

PA6, unfilled

- ◆ UL94 V0 rating
- ◆ GWFI 960°C
- ◆ GWIT 775°C

Easy processing grade that shows improved surface quality, excellent colourability, outstanding toughness and low density for a variety of applications.



Tecomid® NB20 GP20 NL XZ50

PA6, 20% glass fiber reinforced, heat stabilized

- ◆ UL94 V2 rating
- ◆ GWFI 960°C

The grade combines thermal stability, heat resistance, with very good stiffness and surface aspect.

Tecomid® NB40 GR30 NL XA60

PA6, 30% glass fiber reinforced, heat stabilized

- ◆ UL94 V0 rating
- ◆ GWFI 960°C
- ◆ GWIT 800°C

This reinforced grade's high deformation temperature, mechanical strength and tracking resistance offers rigid, dimensionally stable and insulative products.

Tecomid® NA43 GR25 NL XA43

PA6.6, 25% glass fiber reinforced, heat stabilized

- ◆ UL94 V0 rating
- ◆ GWFI 960°C

Red phosphorus flame retardant grade delivers very good mechanical strength and superior self-extinguishing performance.



Tecomid® NT40 GR50 NL XA60

PPA, 50% glass fiber reinforced, heat stabilized

- ◆ UL94 V0 rating
- ◆ GWFI 960°C
- ◆ GWIT 875°C

High performance thermoplastic compound suitable for metal replacement with very high thermal stability, heat resistance, outstanding mechanical strength and elevated working temperature.



Tecotek® PC50 NL222 FA80

PC, transparent up to 2mm thickness

- ◆ UL94 V0 rating at 1.6mm
- ◆ GWFI 960°C at 2mm
- ◆ GWIT 825°C at 2mm

PC grades engineered to satisfy glass clear transparency, high impact strength and flame resistance needs in different thicknesses.

Tecotek® PC10 NL222 FA80

PC, transparent in any thickness

- ◆ UL94 V0 rating at 3.2mm
- ◆ GWFI 960°C at 2mm
- ◆ GWIT 850°C at 2mm



Tecolen® HP30 GR20 NL PU80

PPHP, 20% glass fiber reinforced, heat & UV stabilized

- ◆ UL94 V0 rating
- ◆ GWFI 960°C
- ◆ GWIT 825°C

Hydrolytically stable grade offers, good weatherability and heat resistance with a very low density for replacing polyamide grades under moist working conditions.

Tecotek® OP20 GR20 NL FB81 0B

PPO, 20% glass fiber reinforced, heat stabilized

- ◆ UL94 V1 rating
- ◆ GWFI 960°C

The grade combines, excellent dimensional stability, very good stiffness, very low moisture absorption and high level of heat resistance.



Very Low Smoke & Toxic Gas Grades

Fire Resistant Grades Especially for Indoors & Public Transportation

Whenever there is a fire hazard heat flux increases exponentially. Therefore especially for interior and public transport there is a narrow time gap for escape. Using flame retardant thermoplastic compounds delays the spread of fire assisting with safe evacuation. In most fire cases death or injuries occur due to smoke inhalation or tripping. High smoke densities will block the vision which will both delay escape and increase the chance for tripping. eurotec® offers special halogen free flame retardant thermoplastic compounds for their outstanding self-extinguishing performance and low smoke & toxic gas generation in case of a fire.



Tecomid® NB30 GR15 NL FS90

PA6, 15% glass fiber reinforced

- ◆ UL94 V0 rating
- ◆ GWFI 960°C
- ◆ GWIT 850°C

Specially formulated grade combines very good mechanical strength, stiffness, ignition resistance and excellent self-extinguishing performance with low smoke and toxic gas generation in the case of fire.



Tecomid® NB40 NL TD90 QF

PA6, unfilled

- ◆ UL94 V0 rating
- ◆ GWFI 960°C

The grade offers high impact resistance with a good stiffness over a wide range of working temperatures.

Tecolen® CP30 GR15 NL TD90 QF

PPCP, 15% glass fiber reinforced, impact modified

- ◆ UL94 V0 rating
- ◆ GWFI 960°C

Hydrolytically stable grade offers, excellent impact resistance, very good stiffness and exceptional self-extinguishing performance which enable to produce tough and water resistant products with FDA compliance.



Perfect Combination of Thermal Stability & Fire Resistance

RoHS Compliant Halogenated Flame Retardant Thermoplastic Compounds

Manufacturers often employ hot runner systems to reduce scrap and lower cycle times. If not installed correctly, hot runner systems produce high thermal stresses on the thermoplastic compounds. In order to deal with excessive thermal stress eurotec® can offer RoHS compliant halogenated flame retardant thermoplastic compounds for high thermal stability and outstanding self-extinguishing performance. Halogenated flame retardant compounds from eurotec® achieve high thermal stability and excellent fire ratings for most demanding applications.

Tecodur® PB70 NL TD70

PBT, unfilled, impact modified

- ◆ UL94 V0 rating
- ◆ GWFI 960°C

High flow grade while able to fill very thin sections, also provides excellent surface aspect. Moreover the grade delivers, dimensional stability under moist environment and very good flexibility for easy-assembly.



Tecomid® NB30 NL XC70

PA6, unfilled, heat stabilized

- ◆ UL94 V2 rating
- ◆ GWFI 850°C
- ◆ GWIT 775°C

Exceptional thermal stability of this grade can withstand long residence times during processing and shows outstanding heat aging performance that prevents discolouration during its service life.

Tecolen® CP30 NL XC30

- ◆ UL94 V2 rating
- ◆ GWFI 960°C
- ◆ GWIT 725°C

Cost effective flame retardant grade offers light weight, moisture resistance and very good self-extinguishing performance.



Tecodur® PB70 GR30 NL SV20

PBT, 30% glass reinforced, heat stabilized

- ◆ UL94 V0 rating
- ◆ UL94 5VA rating
- ◆ GWFI 960°C
- ◆ GWIT 725°C

High performance grade offers outstanding fire resistance, dimensional stability, excellent surface aspect and high mechanical strength with easy filling of thin sections.



Ignition Resistant Thermoplastic Compounds

Outstanding Glow Wire Performance

Current trends cause electric /electronic, lighting and home appliances sectors to develop small and compact products with more features. When circuit boards are reduced in size the electric current increases. As a consequence electronic components get subjected to more and more thermal stresses and the demand for ignition resistant thermoplastics gets greater.

eurotec® has developed many solutions for ignition resistant compounds which can deliver superior mechanical properties and thermal resistance alongside with glow wire ignition resistance up to 925°C.

Tecopet® PT70 KK45 BK002 XA20 0B
PET, 45% glass fiber/mineral reinforced,
heat stabilized

- ◆ UL94 V0 rating
- ◆ GWFI 960°C
- ◆ GWIT 875°C

Outstanding fire & ignition resistant grade combines, heat and thermal resistance of metals with excellent mechanical strength.



Tecotek® PC50 NL PU80

PC, unfilled, heat & UV stabilized

- ◆ UL94 V0
- ◆ GWFI 960°C
- ◆ GWIT 875°C

This specially formulated grade offers superior ignition resistance, UV stabilization, very high impact resistance and also generates low smoke and heat release in case of a fire.

Tecomid® NBX0 NL FW99

PA6, unfilled

- ◆ UL94 V2 rating
- ◆ GWFI 960°C
- ◆ GWIT 875°C

The grade combines mechanical strength, low density, excellent colourability with exceptional ignition resistance and easy filling of thin sections.



Tecotek® PC30 GR20 NL ZG20

PC, 20% glass fiber reinforced

- ◆ UL94 V0
- ◆ GWFI 960°C
- ◆ GWIT 925°C

Extremely ignition resistant grade offers very good mechanical strength, dimensional stability coupled with great surface for rigid and durable parts.



PROPERTY	CONDITION	UNIT	STANDARD
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GENERAL			
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Density	-	g/cm ³	ISO 1183
Molding Shrinkage	Parallel / Normal	%	eurotec®
Moisture Content	-	%	ISO 960
Moisture Absorption	50% RH, 23°C	%	ISO 62

MECHANICAL			
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Stress at Break	+23°C	MPa	ISO 527
Strain at Break	+23°C	%	ISO 527
Tensile Modulus	+23°C	MPa	ISO 527
Yield Strength	+23°C	MPa	ISO 527
Izod Impact, notched	+23°C	kJ/m ²	ISO 180/1A
Izod Impact, notched	-30°C	kJ/m ²	ISO 180/1A
Izod Impact, un-notched	+23°C	kJ/m ²	ISO 180/1U
Izod Impact, un-notched	-30°C	kJ/m ²	ISO 180/1U

THERMAL			
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Melting Temperature	10 K/min	°C	ISO 11357
Heat Deformation Temperature	0.45 MPa	°C	ISO 75
Heat Deformation Temperature	1.80 MPa	°C	ISO 75
Vicat Softening Temperature	50N	°C	ISO 306

ELECTRICAL & FLAMMABILITY			
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Volume Resistivity	-	Ohm.cm	IEC 60093
Surface Resistivity	-	Ohm	IEC 60093
Comparative Tracking Index	solution A	V	IEC 60112
Glow Wire Flammability Index	2 mm plaque	°C	IEC 60695
Glow Wire Ignitability Temperature	2 mm plaque	°C	IEC 60695
Flame Rating	0.75 mm	-	UL94
Flame Rating	1.6 mm	-	UL94
Flame Rating	3.2 mm	-	UL94

* data are based on dry as molded

NB40 NL E QL P6, unfilled, natural	NB40 NL FY50 P6, unfilled, flame retardant - halogen & red phosphorus free, natural	NB30 NL XC70 PA6, unfilled, flame retardant - halogen (RoHS compliant), heat stabilized, natural	NB30 NL FW99 PA6, unfilled, flame retardant - halogen (RoHS compliant), ignition resistant, natural	NB30 NL FA50 QL PA6, unfilled, flame retardant - halogen & red phosphorus free, natural
1.13	1.16	1.32	1.26	1.17
1.2 / 1.2	1.1 / 1.1	1.0 / 1.0	1.0 / 1.0	1.0 / 1.0
-	<0.2	<0.2	<0.2	<0.2
3.0	2.7	2.2	-	2.6
-	70	70	70	70
-	-	-	-	-
3000	3250	3250	3750	3500
80	-	-	-	-
6	7	7	5	6
5	6	6	4	5
NB	-	-	-	-
NB	-	-	-	-
223	223	223	223	223
180	185	-	-	-
65	75	75	75	70
200	200	-	-	-
1E+15	1E+15	1E+15	1E+15	1E+15
1E+13	1E+13	1E+13	1E+13	1E+13
600	600	-	-	600
-	960	850	960	960
-	775	775	875	775
V2	V2	V2	V2	V0
V2	V2	V2	V2	V0
V2	-	-	-	V0

NB40 NL XA70 PA6, unfilled, flame retardant -halogen (RoHS compliant), natural	NB40 NL FN70 PA6, unfilled, flame retardant -halogen (RoHS compliant), natural	NB40 NL TD90 OF PA6, unfilled, flame retardant - halogen & red phosphorus free, impact modified, natural, suitable for food contact	NB20 GP20 NL XZ50 PA6, 20% glass fiber reinforced, flame retardant - halogen & red phosphorus free, heat stabilized, natural	NB43 MF20 NL FY70 PA6, 20% mineral filled, flame retardant -halogen (RoHS compliant), natural	NB40 GR15 NL XA70 PA6, 15% glass fiber reinforced, flame retardant -halogen (RoHS compliant), heat stabilized, natural	NB30 GR15 NL FS90 PA6, 15% glass fiber reinforced, flame retardant - halogen & red phosphorus free, natural, low smoke & toxic gas grade	NB40 GR20 NL XA70 PA6, 20% glass fiber reinforced, flame retardant -halogen (RoHS compliant), heat stabilized, natural	NB40 GR20 NL XA60 PA6, 20% glass fiber reinforced, flame retardant -halogen & red phosphorus free, heat stabilized, natural	NB40 GR30 NL XA70 PA6, 30% glass fiber reinforced, flame retardant -halogen (RoHS compliant), heat stabilized, natural	NB40 GR30 NL XA60 PA6, 30% glass fiber reinforced, flame retardant -halogen & red phosphorus free, heat stabilized, natural
1.38	1.45	1.45	1.34	1.45	1.53	1.67	1.50	1.34	1.62	1.39
1.2 / 1.2	0.9 / 0.9	-	-	0.9 / 0.9	0.3 / 0.9	0.3 / 0.7	0.3 / 0.9	0.3 / 0.9	0.2 / 0.8	0.2 / 0.8
<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
2.0	2.0	1.1	-	1.7	1.7	1.1	1.7	1.7	1.4	1.5
65	70	45	65	60	100	70	125	100	125	120
-	-	5.0	3.0	3.5	2.5	2.0	3.0	2.5	2.0	2.5
3500	3750	4500	5500	5500	7500	9000	8000	8500	12500	9500
-	-	-	-	-	-	-	-	-	-	-
6	8	9	4	5	9	7	11	7	10	10
5	7	8	-	4	8	6	9	6	8	8
-	-	-	-	-	65	40	-	-	-	-
-	-	-	-	-	60	35	-	-	-	-
223	223	223	223	223	223	223	223	223	223	223
195	200	-	-	-	215	205	215	215	220	220
80	85	70	170	-	195	185	200	200	205	205
205	205	-	-	-	210	205	210	210	210	210
1E+15	1E+15	1E+15	1E+15	1E+15	1E+15	1E+15	1E+15	1E+15	1E+15	1E+15
1E+13	1E+13	1E+13	1E+13	1E+13	1E+13	1E+13	1E+13	1E+13	1E+13	1E+13
-	-	-	-	-	-	-	-	600	-	600
850	960	960	960	960	960	960	960	960	960	960
800	850	-	-	800	825	850	800	800	825	800
V2	V0	-	V2	V2	V0	V0	V1	V2	V0	V0
V0	V0	-	V2	V2	V0	V0	V0	V0	V0	V0
V0	V0	V0	-	-	V0	V0	V0	V0	V0	V0

NA40 NL E QL
PA6.6, unfilled, natural

NA40 NL TN51
PA6.6/PA6, unfilled, flame retardant
-halogen & red phosphorus free, impact
modified, natural

NA40 NL TW50
PA6.6, unfilled, flame retardant - halogen
& red phosphorus free, surface modified,
natural

NA30 NL FA50 QL
PA6.6, unfilled, flame retardant - halogen
& red phosphorus free, natural

NA43 MF20 NL FY71
PA6.6/PA6, 20% mineral filled, flame
retardant -halogen (RoHS compliant), heat
stabilized, natural

PROPERTY	CONDITION	UNIT	STANDARD
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PROPERTY	CONDITION	UNIT	STANDARD
GENERAL			
Density	-	g/cm ³	ISO 1183
Molding Shrinkage	Parallel / Normal	%	eurotec®
Moisture Content	-	%	ISO 960
Moisture Absorption	50% RH, 23°C	%	ISO 62
MECHANICAL			
Stress at Break	+23°C	MPa	ISO 527
Strain at Break	+23°C	%	ISO 527
Tensile Modulus	+23°C	MPa	ISO 527
Yield Strength	+23°C	MPa	ISO 527
Izod Impact, notched	+23°C	kJ/m ²	ISO 180/1A
Izod Impact, notched	-30°C	kJ/m ²	ISO 180/1A
Izod Impact, un-notched	+23°C	kJ/m ²	ISO 180/1U
Izod Impact, un-notched	-30°C	kJ/m ²	ISO 180/1U
THERMAL			
Melting Temperature	10 K/min	°C	ISO 11357
Heat Deformation Temperature	0.45 MPa	°C	ISO 75
Heat Deformation Temperature	1.80 MPa	°C	ISO 75
Vicat Softening Temperature	50N	°C	ISO 306
ELECTRICAL & FLAMMABILITY			
Volume Resistivity	-	Ohm.cm	IEC 60093
Surface Resistivity	-	Ohm	IEC 60093
Comparative Tracking Index	solution A	V	IEC 60112
Glow Wire Flammability Index	2 mm plaque	°C	IEC 60695
Glow Wire Ignitability Temperature	2 mm plaque	°C	IEC 60695
Flame Rating	0.75 mm	-	UL94
Flame Rating	1.6 mm	-	UL94
Flame Rating	3.2 mm	-	UL94

1.14	1.15	1.19	1.18	1.46
1.4 / 1.4	1.2 / 1.2	1.3 / 1.3	1.3 / 1.3	1.0 / 1.0
-	<0.2	<0.2	<0.2	<0.2
2.7	2.4	2.3	2.3	1.7
-	-	-	-	55
-	-	-	-	20
3200	3000	3250	3750	5000
85	60	55	75	-
5	11	6	5	8
4	8	5	4	7
NB	-	-	-	55
NB	-	-	-	45
262	262	262	262	262
210	-	-	225	-
80	70	80	85	-
125	-	-	245	-
1E+15	1E+15	1E+15	1E+15	1E+15
1E+13	1E+13	1E+13	1E+13	1E+13
600	600	600	600	-
-	850	-	960	960
-	-	-	775	775
V2	V2	-	V0	V2
V2	V2	V2	V0	V0
V2	-	-	V0	V0

* data are based on dry as molded

PB70 NL XA70 PBT, unfilled, flame retardant - halogen (RoHS compliant), heat stabilized, natural	PB70 NL SV20 PBT, unfilled, flame retardant - halogen (RoHS compliant), natural	PB70 NL TD22 PBT/PC, unfilled, flame retardant -halogen (RoHS compliant), impact modified, natural	PB70 NL TD70 PBT, unfilled, flame retardant -halogen (RoHS compliant), impact modified, natural	PB70 GR15 NL XA70 PBT, 15% glass fiber reinforced, flame retardant -halogen (RoHS compliant), heat stabilized, natural
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PROPERTY	CONDITION	UNIT	STANDARD
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PROPERTY	CONDITION	UNIT	STANDARD	PB70 NL XA70	PB70 NL SV20	PB70 NL TD22	PB70 NL TD70	PB70 GR15 NL XA70
GENERAL								
Density	-	g/cm ³	ISO 1183	1.41	1.43	1.36	1.40	1.53
Molding Shrinkage	Parallel / Normal	%	eurotec®	1.5 / 1.5	1.5 / 1.5	1.4 / 1.4	1.6 / 1.6	0.4 / 1.1
Moisture Content	-	%	ISO 960	<0.08	<0.08	<0.08	<0.08	<0.08
Moisture Absorption	50% RH, 23°C	%	ISO 62	0.2	0.2	0.2	0.2	0.2
MECHANICAL								
Stress at Break	+23°C	MPa	ISO 527	60	60	50	45	100
Strain at Break	+23°C	%	ISO 527	-	-	-	-	3.0
Tensile Modulus	+23°C	MPa	ISO 527	2750	3000	2500	2500	6500
Yield Strength	+23°C	MPa	ISO 527	-	-	-	-	-
Izod Impact, notched	+23°C	kJ/m ²	ISO 180/1A	6	5	12	8	7
Izod Impact, notched	-30°C	kJ/m ²	ISO 180/1A	5	4	10	6	6
Izod Impact, un-notched	+23°C	kJ/m ²	ISO 180/1U	-	-	-	NB	-
Izod Impact, un-notched	-30°C	kJ/m ²	ISO 180/1U	-	-	-	NB	-
THERMAL								
Melting Temperature	10 K/min	°C	ISO 11357	225	225	225	225	225
Heat Deformation Temperature	0.45 MPa	°C	ISO 75	-	165	-	-	-
Heat Deformation Temperature	1.80 MPa	°C	ISO 75	65	65	70	55	185
Vicat Softening Temperature	50N	°C	ISO 306	-	-	-	-	-
ELECTRICAL & FLAMMABILITY								
Volume Resistivity	-	Ohm.cm	IEC 60093	1E+16	1E+16	1E+16	1E+16	1E+16
Surface Resistivity	-	Ohm	IEC 60093	1E+14	1E+14	1E+14	1E+14	1E+14
Comparative Tracking Index	solution A	V	IEC 60112	225	225	-	225	225
Glow Wire Flammability Index	2 mm plaque	°C	IEC 60695	960	960	960	960	960
Glow Wire Ignitability Temperature	2 mm plaque	°C	IEC 60695	-	-	-	-	-
Flame Rating	0.75 mm	-	UL94	V0	V0	V0	V2	-
Flame Rating	1.6 mm	-	UL94	V0	V0	V0	V0	V0
Flame Rating	3.2 mm	-	UL94	V0	V0	V0	V0	V0

* data are based on dry as molded

PROPERTY	CONDITION	UNIT	STANDARD	PC40 NL FA70 PC, unfilled, flame retardant - halogen (RoHS compliant), natural	PC30 NL TD70 PC, unfilled, flame retardant - halogen (RoHS compliant), impact modified, natural	PC43 NL TD70 PC, unfilled, flame retardant - halogen (RoHS compliant), impact modified, natural	PC50 NL PU80 PC, unfilled, flame retardant - Br, Cl free, heat & UV stabilized, natural	PC50 NL222 FA80 PC, unfilled, flame retardant - halogen free, transparent up to 2mm, natural
GENERAL								
Density	-	g/cm ³	ISO 1183	1.23	1.21	1.22	1.21	1.18
Molding Shrinkage	Parallel / Normal	%	eurotec®	0.5 / 0.5	0.6 / 0.6	0.6 / 0.6	0.5 / 0.5	-
Moisture Content	-	%	ISO 960	<0.1	<0.1	<0.1	<0.1	<0.1
Moisture Absorption	50% RH, 23°C	%	ISO 62	0.2	0.2	0.2	0.2	0.2
MECHANICAL								
Stress at Break	+23°C	MPa	ISO 527	65	60	60	70	65
Strain at Break	+23°C	%	ISO 527	>20	>50	>20	>5	>50
Tensile Modulus	+23°C	MPa	ISO 527	2500	2250	2250	2500	2500
Yield Strength	+23°C	MPa	ISO 527	-	-	-	-	-
Izod Impact, notched	+23°C	kJ/m ²	ISO 180/1A	8	50	35	10	11
Izod Impact, notched	-30°C	kJ/m ²	ISO 180/1A	7	20	15	-	10
Izod Impact, un-notched	+23°C	kJ/m ²	ISO 180/1U	-	NB	NB	-	-
Izod Impact, un-notched	-30°C	kJ/m ²	ISO 180/1U	-	NB	NB	-	-
THERMAL								
Melting Temperature	10 K/min	°C	ISO 11357	-	-	-	-	-
Heat Deformation Temperature	0.45 MPa	°C	ISO 75	-	105	105	115	-
Heat Deformation Temperature	1.80 MPa	°C	ISO 75	120	95	95	105	135
Vicat Softening Temperature	50N	°C	ISO 306	-	130	130	120	-
ELECTRICAL & FLAMMABILITY								
Volume Resistivity	-	Ohm.cm	IEC 60093	1E+15	1E+15	1E+15	1E+15	1E+15
Surface Resistivity	-	Ohm	IEC 60093	1E+15	1E+15	1E+15	1E+15	1E+15
Comparative Tracking Index	solution A	V	IEC 60112	-	225	225	-	-
Glow Wire Flammability Index	2 mm plaque	°C	IEC 60695	960	960	960	-	960
Glow Wire Ignitability Temperature	2 mm plaque	°C	IEC 60695	-	900	875	-	-
Flame Rating	0.75 mm	-	UL94	V0	V0	V0	-	-
Flame Rating	1.6 mm	-	UL94	V0	V0	V0	V0	V0
Flame Rating	3.2 mm	-	UL94	V0	V0	V0	V0	V0

* data are based on dry as molded

Tecotek®

Tecolen®

BC40 UF85 NL XA80

PC/ABS, unfilled, flame retardant - Br, Cl free, heat stabilized, natural, high heat grade

BC10 UF85 NL PU81

PC/ABS, unfilled, flame retardant - Br, Cl free, heat & UV stabilized, white, high heat grade

BC41 GR15 NL XC81

PC/ABS, 15% glass fiber reinforced, flame retardant - Br, Cl free, heat stabilized, natural

CP30 NL XC30

PPCP, unfilled, flame retardant -halogen (RoHS compliant), heat stabilized, natural

CP30 NL PF30

PPCP, unfilled, flame retardant -halogen (RoHS compliant), heat & UV stabilized, natural

PROPERTY CONDITION UNIT STANDARD

GENERAL

Density	-	g/cm ³	ISO 1183	1.18	1.20	1.30	0.93	0.92
Molding Shrinkage	Parallel / Normal	%	eurotec®	-	-	-	-	-
Moisture Content	-	%	ISO 960	-	-	-	-	-
Moisture Absorption	50% RH, 23°C	%	ISO 62	-	-	-	-	-

MECHANICAL

Stress at Break	+23°C	MPa	ISO 527	60	60	100	20	25
Strain at Break	+23°C	%	ISO 527	-	>50	-	>100	>100
Tensile Modulus	+23°C	MPa	ISO 527	2500	2750	6000	1000	1250
Yield Strength	+23°C	MPa	ISO 527	-	-	-	-	-
Izod Impact, notched	+23°C	kJ/m ²	ISO 180/1A	15	35	8	60	55
Izod Impact, notched	-30°C	kJ/m ²	ISO 180/1A	-	12	7	10	10
Izod Impact, un-notched	+23°C	kJ/m ²	ISO 180/1U	-	-	-	-	-
Izod Impact, un-notched	-30°C	kJ/m ²	ISO 180/1U	-	-	-	-	-

THERMAL

Melting Temperature	10 K/min	°C	ISO 11357	-	-	-	165	165
Heat Deformation Temperature	0.45 MPa	°C	ISO 75	-	-	-	-	-
Heat Deformation Temperature	1.80 MPa	°C	ISO 75	90	90	115	50	50
Vicat Softening Temperature	50N	°C	ISO 306	-	-	-	-	-

ELECTRICAL & FLAMMABILITY

Volume Resistivity	-	Ohm.cm	IEC 60093	1E+13	1E+13	1E+13	1E+15	1E+15
Surface Resistivity	-	Ohm	IEC 60093	1E+15	1E+15	1E+15	1E+15	1E+15
Comparative Tracking Index	solution A	V	IEC 60112	-	-	-	-	-
Glow Wire Flammability Index	2 mm plaque	°C	IEC 60695	960	960	960	960	960
Glow Wire Ignitability Temperature	2 mm plaque	°C	IEC 60695	-	-	-	775	775
Flame Rating	0.75 mm	-	UL94	V2	-	V2	V2	V2
Flame Rating	1.6 mm	-	UL94	V0	V0	V2	V2	V2
Flame Rating	3.2 mm	-	UL94	V0	V0	-	-	-

* data are based on dry as molded

CP30 NL XA80 PPCP; unfilled, flame retardant - halogen & red phosphorus free, heat stabilized, natural	CP30 NL TD90 QF PPCP; unfilled, impact modified, flame retardant - halogen free, low smoke & toxic gas grade, suitable for food contact, natural	CP20 MF20 NL XC30 PPCP; 20% mineral filled, flame retardant -halogen (RoHS compliant), heat stabilized, natural	CP20 MF20 NL XA70 PPCP; 20% mineral filled, flame retardant -halogen (RoHS compliant), heat stabilized, natural	CP30 GR15 NL TD90 QF PPCP; 15% glass fiber reinforced, impact modified, flame retardant - halogen free, low smoke and toxic gas grade, suitable for food contact, natural	CP20 GR20 NL XC30 PPCP; 20% glass fiber reinforced, flame retardant -halogen (RoHS compliant), heat stabilized, natural	HP30 NL XC30 PPHP; unfilled, flame retardant -halogen (RoHS compliant), heat stabilized, natural	HP30 NL XC81 PPHP; unfilled, flame retardant -halogen & red phosphorus free, heat stabilized, natural	HP30 NL XA80 PPHP; unfilled, flame retardant -halogen & red phosphorus free, heat stabilized, natural	HP30 GR20 NL PU80 PPHP; %20 glass fiber reinforced, flame retardant -halogen & red phosphorus free, heat & UV stabilized, natural	OX20 WH200 XD85 Polyolefin mix, flame retardant - halogen free, heat stabilized, white
1.05	1.46	1.09	1.36	1.57	1.07	0.93	1.03	1.05	1.25	1.16
-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-
20	10	30	20	30	50	30	25	25	70	-
-	20	40	10	3.0	5.0	>100	-	-	5.0	>100
1750	2000	2250	3500	5750	4000	1250	2000	2500	6500	100
-	-	-	-	-	-	-	-	-	-	-
10	25	15	15	12	25	8	5	4	8	25
4	-	5	5	7	-	3	4	3	7	-
-	NB	75	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-
165	165	165	165	165	165	170	170	170	170	-
-	-	-	-	-	-	-	-	-	-	-
60	45	55	60	80	90	65	60	70	140	30
-	-	-	-	-	-	-	-	-	-	-
1E+15	1E+15	1E+15	1E+15	1E+15	1E+15	1E+15	1E+15	1E+15	1E+15	1E+15
1E+15	1E+15	1E+15	1E+15	1E+15	1E+15	1E+15	1E+15	1E+15	1E+15	1E+15
600	-	-	-	-	-	-	600	600	-	-
960	960	850	960	960	850	960	960	960	960	-
875	-	775	725	-	800	775	-	875	825	-
V2	-	V2	V0	-	V2	V2	V2	V2	V0	-
V0	-	V2	V0	V0	V2	V2	V2	V0	V0	-
V0	V0	-	V0	V0	-	-	-	V0	V0	V0

All information in this complete document presents current state of knowledge and experience. The information and data may not be valid when any mentioned material is used in combination with other materials. These data do not guarantee certain values since may vary on processing conditions and end-use conditions. All information and data are provided for reference purposes only and should not be used alone to create specification limits and design basis. It is strongly recommended to test the product under own processing conditions and test facilities to determine the suitability for the required application and use.



Tecomid® PA6, PA6.6, PA6.6/6, and PA blends

Tecomid® HT PPA

Tecodur® PBT, and PBT blends

Tecopet® PET

Tecotek® PC, and PC blends

Tecotek® PPO, and PPO blends

Tecolen® PP, and PE speciality

Tecoform® POM





Established in 2004 and based in European Free Zone/Corlu, eurotec® is a leading manufacturer of engineering plastics for various sectors, primarily automotive and transportation, electrical/electronic, home appliances, sports and leisure, safety equipment, garden and power tools, medical industry, construction & agricultural equipment, furniture industries.

Making a difference via its unique structure and approach to business, eurotec® sells more than half of its products in international markets and has managed to be the leader in the market with the help of its high quality products, sustained quality, multi-alternative solutions and understanding of aesthetics.

eurotec® supports its advanced technology with its dynamic and experienced human resources. Aiming to manufacture the best in the most efficient way and with the most possible competitive attitude, eurotec® supports its objective by continuous development efforts that involve offering a wide range of high quality products.

Adopting team work as a business philosophy, eurotec® views its customers as a part of this team. As customer needs and requests are forwarded accurately and completely to the R&D Department as a result of mutual information exchange, a product and application development process customized according to the customer needs are planned and implemented. Thanks to this process, we ensure that special products in desired colours and quality meet the requirements of the customer from each and every aspect and that they are designed in the shortest time possible with minimum amount of trials.

Tests are conducted in latest technology R&D and Quality laboratories, in compliance with ISO and other generally accepted international standards by using automatic and semi-automatic equipment to obtain reliable and reproducible results. eurotec® offers the following comprehensive services to its customers and business partners;

- ◆ Development of customized products, applications and colours at pilot facilities
- ◆ Material identification
- ◆ Flame and fire resistance tests
- ◆ Accelerated ageing tests against environmental and extraordinary conditions/ influences
- ◆ Colour and gloss measurements
- ◆ Mechanical and physical tests
- ◆ Electrical and thermal tests
- ◆ Instrumental analysis
- ◆ Rheology and process ability applications
- ◆ Customer process simulations and
- ◆ Other tests specific to the customer



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