



CHARMANT

Material Guide

PLASTICS, METALS AND TITANIUM

PLEASE NOTE:

ALL INDICATORS ONLY REFER TO THE MATERIAL ITSELF, NOT TO THE FINISHED EYEGASSES WHICH POSSIBLY CONSIST OF DIFFERENT MATERIAL COMBINATIONS.

CONTENT

PLASTIC MATERIALS

Acetate
Ultem (PEI)
TR90 (PA)
PES
PPSU
Bio based G850

METALS

Stainless steel
Nickel silver

TITANIUM

Pure Titanium
Beta Titanium
Excellence Titan
Nickel Titanium

COLOR OF FEATURE ICONS:



COMFORT
FEATURES



RESISTANCY
FEATURES



HEALTH &
ENVIRONMENT
FEATURES



FURTHER
FEATURES

PLASTICS: Acetate

A synthetic resin based on organic ingredients. One of the most commonly used materials in the optical industry. Officially called «Cellulose acetate», made of cotton fiber.. Thanks to its organic origin, it is considered as non allergenic material.

Resistancy-related features



UV-resistant



Corrosion-free

Health- and environment-related features



Nickel-free

Further features



Easy handling for Opticians

- Standard glazing
- Can be heated
- Good adjustability thanks to metal core



Clear transparency



Unique possibilities in color design and effects:

- Some colors can only be done in Acetate which provides exclusive styling on these products

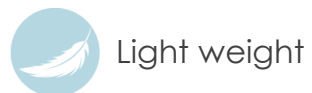


Ultem/PEI** – Durability proven in space

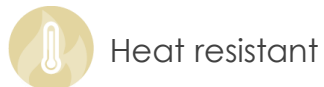
*Polyetherimide ** Ultem is the trademark of Sabic based in Riyadh, Saudi Arabia

Ultem/PEI is one of the most appreciated engineering plastics (sulphone polymer) which is widely used within the high-tech industry - e. g. for parts of medical equipment or aircrafts like the AIRBUS A380 and even used for spacecraft.

Comfort-related features



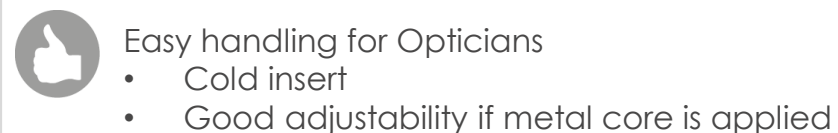
Resistancy-related features



Health- and environment-related features



Further features



TR 90 (Grilamide) – backed by Swiss technology

TR90, a material within the Polyamid (PA) family, was developed in Switzerland. It is a common thermoplastic injection material providing excellent properties for the production of eyewear. Suitable for 3D shapes as well as the combination with other materials (such as metal pieces as design accent)


Comfort-related features

-  Light weight
-  Flexible




Resistancy-related features

-  Durable
-  Corrosion-free

Health- and environment-related features

-  Nickel-free (unless metal decoration is applied)

Further features

-  Easy handling for Opticians
 - Standard glazing
 - Good adjustability if metal core is applied
-  Clear transparency
-  Various possibilities in colour design



PES (Polyethersulphone) – a new generation of super engineering material

The new generation of a technical material providing excellent properties for further processing. PES is widely used in various industries where tiny pieces are being precisely processed. PES is part of “PEI/Ultem” family but we can realize lighter/more vivid color than with PEI/Ultem. The choice between PEI & PES has purely aesthetic reasons.

Comfort-related features



Light weight



Flexible

Resistancy-related features



Durable



Heat resistant



Corrosion-free



Shock resistant

Health- and environment-related features



Nickel-free

Further features



Easy handling for Opticians

- Cold insert
- Good adjustability if metal core is applied

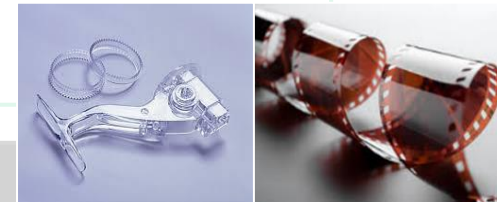


Clear transparency



Various design possibilities:

- Fine design is possible



PPSU (Polyphenylsulphone) – another super engineering plastic

PPSU is the highest performing sulfone polymer with a high heat resistance, impact and chemical resistance. PPSU is widely used in aircraft interiors, medical equipment, food utensils (such as baby bottles). Just like PES, this material has very similar characteristics as PEI/Ultem. The choice of PPSU is rather related to design/color requirements.

Comfort-related features



Light weight



Flexible

Resistancy-related features



Durable



Heat resistant



Corrosion-free



Shock resistant

Health- and environment-related features



Nickel-free

Further features



Easy handling for Opticians

- Cold insert



Clear transparency



Various design possibilities:

- Fine design is possible



Bio - based (G850 Rilsan)

G850 belongs to the group of transparent polyamides with excellent mechanical and chemical properties. It's often used in industrial filters, production of baby bottles, breathing masks and consumer electronics. The bio-based material is made from Castor oil extracted from the Castor plant which is growing on poor soil in tropical or semi-arid areas and doesn't compete with food crop.

Comfort-related features



Light weight



Flexible

Resistancy-related features



Durable



Chemical resistant

Health- and environment-related features



Nickel-free



Recyclable



BPA-free
(doesn't contain
Bisphenol A)



Sustainable

Further features



Easy handling for Opticians

- Cold insert
- Good adjustability if metal core is applied



Clear transparency



Various possibilities in color design



NOTE: The below guideline is a handling-**recommendation** only.

Technical overview – Material Matrix

		ACETATE	BIO - BASED G850	TR90	PES	ULTEM (PEI)	PPSU
Material Family	other names used	Cellulose Acetate/CE Zyl	Transparent Polyamide derived from Castor Plant	Grilamide/Thermoplastic Polyamide (PA)	Polyethersulphone B-plastic/super engineered plastic	Polyetherimide High performance thermoplastic	Polyphenylsulfone B-plastic/super engineered plastic
Feature	Flexibility	No	Yes	Yes	Yes	Yes	Yes
	Lightness	Standard	Yes	Yes	Yes	Yes	Yes
Glazing	Lens insertion	Can be heated	Cold Insert	Can be heated	Cold Insert	Cold Insert	Cold Insert
	Heat resistance	Yes / +70	-20 / +80	-40 /+ 100	-100 / +200	-50 / +230	-30 / +200
Cleaning	Non abrasive, neutral detergent (Dawn)	Neutral detergent	Neutral detergent	Neutral detergent	Neutral detergent	Neutral detergent	Neutral detergent
Adjustment	Temple & bending adjustment	Yes	Yes, if with core wire	Yes, if with core wire	Yes, if with core wire	Yes, if with core wire	Yes, if with core wire
	Temple length adjustment	No	No	No	No	No	No
	End piece adjustment	Yes	No	No	No	No	No
Usage	Other product categories	Accessories, jewelry hair clips	Baby bottles, consumer electronics	Car parts	Car parts, medical equipment	aerospace, car parts baby bottles	Medical equipment, food containers, baby bottles
Usage of Chemicals	Loctite (adhesive)	OK	NO	NO	NO	NO	NO
	Methylated spirit (ethyl alcohol-solvent)	OK	NO	NO	OK	OK	OK
	Petroleum benzine (solvent)	NO	NO	NO	NO	NO	NO
	Oil	OK	OK	OK	NO	NO	NO
	Isopropyl (alcohol)	NO	OK	OK	NO	NO	NO

Examples: Styles by plastic material:

ACETATE	BIO - BASED G850	TR90	PES	ULTEM (PEI)	PPSU
AR 18436	EB 32057	EL 13419	ET 17548	ET 17444N	ET 33449
AR 18437	EB 32058	EL 13498	ET 17562	ET 17447N	EL 13510
AR 18642	EB 32059	EL 13398		ET 33444	EL 13511
AR 18645		EL 13404		EB 32016	EL 13512
IM 30049		EL 13410			ET 33453
IM 30024		EL 13473			ET 33454
IM 30048		EB 32017			ET 33459
IM 30049		EB 32036			EB 32037
IM 30050		EB 32042			EB 32038
IM 30052					EB 32038
EB 32027					EB 32039
					EB 32046
					EB 32047

METALS: STAINLESS STEEL

Stainless steel is widely used in the production of metal Eyewear frames thanks to its excellent properties and the thin construction. Stainless Steel contains Nickel and is therefore getting coated with resin spray paint.

Resistancy-related features



Durable



Lightweight

Further features



Easy handling for Opticians

- Standard glazing
- Good adjustability when heated



Various design possibilities:

- Fine design is possible

Health- and environment-related features



Risk of Nickel allergy when surface is damaged



NICKEL SILVER

Nickel Silver is the most common metal in the production of Eyewear. Although it is normally well tolerated Nickel Silver is coated with resin spray paint.

Resistancy-related features



Heat resistant

Further features



Easy handling for Opticians

- Standard glazing
- Good adjustability when heated



Various design possibilities

Health- and environment-related features






Risk of Nickel allergy when surface is damaged



NICKEL TITANIUM

50% Nickel and 50% Titanium. Also referred to as “NT” or “Memory Metal”

Comfort-related features

-  Lightweight (lighter than common metal)
-  Memory function
 - Frame returns to its original shape after deformation
-  Memory function weakens below 0°C

Resistancy-related features

-  Durable
-  Heat resistant
-  Corrosion-free

Health- and environment-related features

-  Risk of Nickel allergy when surface is damaged

Further features

-  Easy handling for Opticians
 - Standard glazing
 - Good adjustability (after heat treatment during manufacturing process)

PURE TITANIUM

Titanium is a lustrous transition metal with a silver color, **low density**, and **high strength**. Titanium is **resistant to corrosion** in sea water, aqua regia, and chlorine. Pure titanium is stronger than common, low-carbon steels, but 45% lighter.

Comfort-related features



Lightweight

Health- and environment-related features



Nickel-free

Resistancy-related features



Durable



Heat resistant



Corrosion-free



Shock resistant

Further features



Easy handling for Opticians

- Standard glazing
- Good adjustability



Various design possibilities:

- Fine design is possible

BETA TITANIUM

75% Titanium, 25% Aluminium and Vanadium.

Comfort-related features



Lightweight



Flexible

Health- and environment-related features



Nickel-free

Resistancy-related features



Durable



Heat resistant



Corrosion-free



Shock resistant



UV-resistant

Further features



Easy handling for Opticians

- Standard glazing
- Good adjustability
(after heat treatment during manufacturing process)



Various design possibilities:

- Fine design is possible

EXCELLENCE TITAN

The CHARMANT Groups proprietary material. Developed and patented by CHARMANT Group. All LINE ART CHARMANT frames are made of Excellence Titan.

Comfort-related features



Lightweight



Flexible



Memory function

- Frame returns to its original shape after deformation.

Health- and environment-related features



Nickel-free

Resistancy-related features



Durable



Heat resistant



Corrosion-free



Shock resistant



UV-resistant

Further features



Easy handling for Opticians

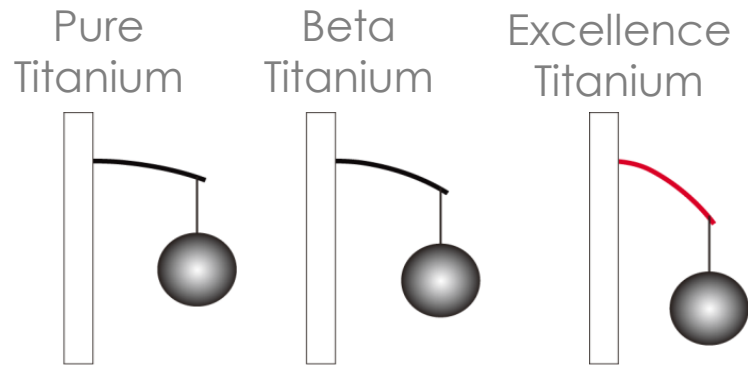
- Standard glazing
- Good adjustability
(when mixed with adequate materials)



Various and unique design possibilities.

COMPARISON – TITANIUM MATERIALS

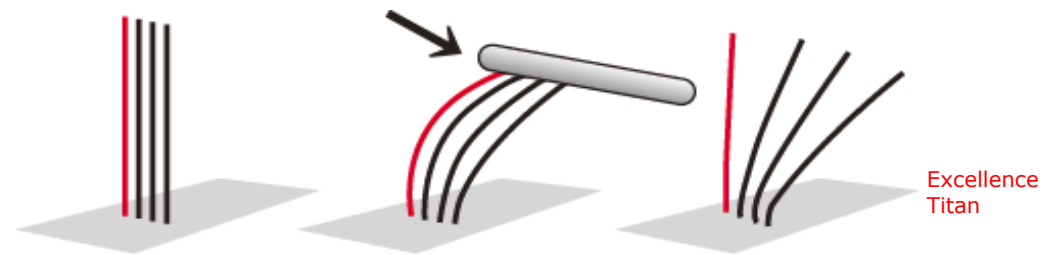
Degree of flexibility in comparison:



Elasticity function in comparison:

Elasticity function of Excellence Titan:

Returning to shape after large deformation.



Examples: Styles by material

STAINLESS STEEL	NICKEL SILVER	NICKEL TITANIUM	BETA TITANIUM	PURE TITANIUM	EXCELLENCE TITANIUM
IM 30062	EL 13488	EB 32034	CH 8333	CHARMANT TITANIUM	LINE ART CHARMANT
IM 30054	EL 13501	EB 32035	CH 8600	MINAMOTO COLLECTION	COLLETION
IM 30055	EL 14909	EB 32043	CH 16700 SERIES		
AR 30704	AR 30716	EB 32045		Note: combination of titanium front with beta titanium temples	
AR 30711	AR 30717	EB 32021			
	AR 30718	EB 32022			
		AR 16216			
		AR 16258			
		AR 16260			
		AR 16267			
		AR 30714			



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