

Material Data Sheet U500-R95

Polyurethane U500-R95 - red

General

U500-R95 is a hydrolysis-resistant (H-PU), casted Polyurethane, based on MDI, Polycarbonate Polyol and certain additives. Due to the excellent overall properties it is recommended as a standard sealing material for most of the hydraulic applications.

Physical properties

Density:	DIN 53479	g/cm ³	1,16 ±0,03
Hardness at 23°C:	DIN 53505	Shore A	95 ±2
Hardness at +100°C:	DIN 53505	Shore A	93 ±2
100% Modulus:	DIN 53504	N/mm ²	≥ 10
300% Modulus:	DIN 53504	N/mm ²	≥ 30
Tensile strength:	DIN 53504	N/mm ²	≥ 50
Elongation at break:	DIN 53504	%	≥ 350
Tear strength:	DIN 53515	kN/m	≥ 100
Compression set, 24h, 70°C, 25%:	DIN 53517	%	≤ 25
Compression set, 24h, 100°C, 25%:	DIN 53517	%	≤ 35

Temperature range: -30°C to 125°C

Chemical resistance

Resistant to: Water up to 90°C, Sea Water, Mineral Oils, Vegetable Oils, Silicone Oils, Ozone, Oxygen (cold), HFA fluids, HFB fluids, diluted Acids and Lyes

Not Resistant to: Steam, conc. Acids and Lyes, conc. Alcohols, Solvents, HFD fluids

Main application

Static and dynamic applications, mostly used for U-seals, wipers and packings up to 400 bar pressure in standard hydraulics. Due to its outstanding hydrolysis resistance it can be used in the most common hydraulic fluids, oil in water emulsions but also water power applications, applications in the mining industry and presses. U500-R95 can also be used in applications with contact to foodstuff.

Available certificates

- Conform to (EC) No 1935/2004 and (EC) No 10/2011
- Conform to positive list of FDA 21 CFR 177.1680

Analysis and Evaluation

Values mentioned above are based on several tests performed during development and production of the material. Tests have been performed on standard test pieces specified within the relevant standard within the laboratory. Tests performed on any other pieces which are not related to the corresponding standard or made out of any (semi)finished part or any other part deviating in production process, dimension or age of the material from above may result in different values. The data represent our present empirical values and do not disengage the processor or user from his obligation to examine the usage of the material for his specific application.

v1.2

We reserve the right to update this data sheet from time to time if new empirical values are available. Errors and omissions excepted.

V1.2

Material Data Sheet U510-G88

Polyurethane U510-G88 – light green (Soft Grade Polyurethane)

General

U500-G88 is a hydrolysis-resistant (H-PU), casted Polyurethane, based on MDI, Polycarbonate Polyol and certain additives. Due to the adjustment at 90 Shore A it is very flexible and easier to install in tight housing situations and is also used when a “softer” material is needed to have higher compression (preload) of the sealing material.

Physical properties

Density:	DIN 53479	g/cm ³	1,17 ±0,03
Hardness at 23°C:	DIN 53505	Shore A	90 ±2
Hardness at +100°C:	DIN 53505	Shore A	85 ±2
100% Modulus:	DIN 53504	N/mm ²	≥ 8
300% Modulus:	DIN 53504	N/mm ²	≥ 30
Tensile strength:	DIN 53504	N/mm ²	≥ 45
Elongation at break:	DIN 53504	%	≥ 300
Tear strength:	DIN 53515	kN/m	≥ 90
Compression set, 24h, 70°C, 25%:	DIN 53517	%	≤ 25
Compression set, 24h, 100°C, 25%:	DIN 53517	%	≤ 45

Temperature range: -30°C to 115°C

Chemical resistance

Resistant to: Water up to 90°C, Sea Water, Mineral Oils, Vegetable Oils, Silicone Oils, Ozone, Oxygen (cold), HFA fluids, HFB fluids

Not Resistant to: Steam, conc. Acids and Lyes, conc. Alcohols, Solvents, HFD fluids

Main application

Static and dynamic applications, mostly used for U-seals, wipers and packings up to 200 bar pressure in standard hydraulics or pneumatics. U510-G88 can be used as a substitute for N107-B85 or other elastomers with 85 Shore A where the chemical resistance of the elastomer may not be sufficient. Due to its outstanding hydrolysis resistance it can be used in the most common hydraulic fluids, oil in water emulsions but also water power applications.

Analysis and Evaluation

Values mentioned above are based on several tests performed during development and production of the material. Tests have been performed on standard test pieces specified within the relevant standard within the laboratory. Tests performed on any other pieces which are not related to the corresponding standard or made out of any (semi)finished part or any other part deviating in production process, dimension or age of the material from above may result in different values. The data represent our present empirical values and do not disengage the processor or user from his obligation to examine the usage of the material for his specific application.

v1.2

We reserve the right to update this data sheet from time to time if new empirical values are available. Errors and omissions excepted.

V1.0

Material Data Sheet U520-OR95-HT

Polyurethane U520-OR95-HT – orange (High Temp. Polyurethane)

General

U520-OR95-HT is a hydrolysis-resistant (H-PU), casted Polyurethane, based on MDI, Polycarbonate Polyol and certain additives. Due to the excellent stability of the physical properties at higher temperatures and outstanding thermal ageing resistance, compared to other Polyurethanes it is recommended for applications where temperature and mechanical stress of the material reach the limits of standard Polyurethanes.

Physical properties

Density:	DIN 53479	g/cm ³	1,09 ±0,03
Hardness at 23°C:	DIN 53505	Shore A	96 ±2
Hardness at +100°C:	DIN 53505	Shore A	93 ±2
100% Modulus:	DIN 53504	N/mm ²	≥ 10
300% Modulus:	DIN 53504	N/mm ²	≥ 25
Tensile strength:	DIN 53504	N/mm ²	≥ 45
Elongation at break:	DIN 53504	%	≥ 350
Tear strength:	DIN 53515	kN/m	≥ 110
Compression set, 24h, 70°C, 25%:	DIN 53517	%	≤ 25
Compression set, 24h, 100°C, 25%:	DIN 53517	%	≤ 30
Compression set, 24h, 125°C, 25%:	DIN 53517	%	≤ 65

Temperature range: -30°C to 135°C

Chemical resistance

Resistant to: Water up to 90°C, Sea Water, Mineral Oils, Vegetable Oils, Silicone Oils, Ozone, Oxygen (cold), HFA fluids, HFB fluids, diluted Acids and Lyes

Not Resistant to: Steam, conc. Acids and Lyes, conc. Alcohols, Solvents, HFD fluids

Main application

Static and dynamic applications, mostly used for U-seals, wipers, packings and oil seals up to 400 bar pressure in various applications. Especially in those where the combination of temperature, pressure and wear resistance of rubber and other polyurethane materials reach their limits, but also where heat generation because of friction is expected.

Analysis and Evaluation

Values mentioned above are based on several tests performed during development and production of the material. Tests have been performed on standard test pieces specified within the relevant standard within the laboratory. Tests performed on any other pieces which are not related to the corresponding standard or made out of any (semi)finished part or any other part deviating in production process, dimension or age of the material from above may result in different values. The data represent our present empirical values and do not disengage the processor or user from his obligation to examine the usage of the material for his specific application.

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v1.2

Material Data Sheet U530-B95-LT

Polyurethane U530-B95-LT – light blue (Low Temp. Polyurethane)

General

U530-B95-LT is a hydrolysis – resistant (H-PU), casted Polyurethane, based on MDI, Polyether Polyol and certain additives. It is recommended at low temperatures (-50°C), but also in standard hydraulic applications ($\leq 105^{\circ}\text{C}$) as well as hot water applications ($\leq 90^{\circ}\text{C}$).

Physical properties

Density:	DIN 53479	g/cm ³	1,11 ±0,03
Hardness at 23°C:	DIN 53505	Shore A	95 ±2
Hardness at +100°C:	DIN 53505	Shore A	92 ±2
100% Modulus:	DIN 53504	N/mm ²	≥ 7
300% Modulus:	DIN 53504	N/mm ²	≥ 15
Tensile strength:	DIN 53504	N/mm ²	≥ 40
Elongation at break:	DIN 53504	%	≥ 450
Tear strength:	DIN 53515	kN/m	≥ 100
Compression set, 24h, 70°C, 25%:	DIN 53517	%	≤ 20
Compression set, 24h, 100°C, 25%:	DIN 53517	%	≤ 30

Temperature range: -50°C to 105°C

Chemical resistance

Resistant to: Water up to 90°C, Sea Water, Mineral Oils, Vegetable Oils, Silicone Oils, Ozone, Oxygen (cold), HFA fluids, HFB fluids
Not Resistant to: Steam, conc. Acids and Lyes, conc. Alcohols, Solvents, HFD fluids

Main application

Static and dynamic applications, mostly used for U-seals, wipers and packings up to 400 bar pressure in hydraulics with extreme low temperature conditions as well as in standard hydraulics.

Due to its excellent hydrolysis resistance U530-B95-LT can be used in the most common hydraulic fluids and oil in water emulsions as well. It is also appropriate for applications with contact to foodstuff.

Available certificates

- Conform to (EC) No 1935/2004 and (EC) No 10/2011
- Conform to positive list of FDA 21 CFR 177.1680

Analysis and Evaluation

Values mentioned above are based on several tests performed during development and production of the material. Tests have been performed on standard test pieces specified within the relevant standard within the laboratory. Tests performed on any other pieces which are not related to the corresponding standard or made out of any (semi)finished part or any other part deviating in production process, dimension or age of the material from above may result in different values. The data represent our present empirical values and do not disengage the processor or user from his obligation to examine the usage of the material for his specific application.

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V1.2

Material Data Sheet U540-VI95-CR

Polyurethane U540-VI95-CR – violet (Chemical resist. Polyurethane)

General

U540-VI95-CR is a hydrolysis-resistant (H-PU), casted Polyurethane, based on MDI, Polycarbonate Polyol and certain additives. It is resistant against the common used CIP-fluids and shows low swelling effects in non-polar fluids like mineral oils or fatty foodstuff.

Physical properties

Density:	DIN 53479	g/cm ³	1,16 ±0,03
Hardness at 23°C:	DIN 53505	Shore A	95 ±2
Hardness at +100°C:	DIN 53505	Shore A	92 ±2
100% Modulus:	DIN 53504	N/mm ²	≥ 10
300% Modulus:	DIN 53504	N/mm ²	≥ 30
Tensile strength:	DIN 53504	N/mm ²	≥ 45
Elongation at break:	DIN 53504	%	≥ 300
Tear strength:	DIN 53515	kN/m	≥ 120
Compression set, 24h, 70°C, 25%:	DIN 53517	%	≤ 25
Compression set, 24h, 100°C, 25%:	DIN 53517	%	≤ 40

Temperature range: -30°C to 115°C

Chemical resistance

Resistant to: Water up to 90°C, CIP-fluids, Mineral Oils, Vegetable Oils, Ozone, Oxygen (cold), HFA fluids, HFB fluids, diluted Acids and Lyes

Not Resistant to: Steam, conc. Acids and Lyes, conc. Alcohols, Solvents, HFD fluids

Main application

Static and dynamic applications, mostly used for U-seals, wipers and packings up to 400 bar pressure in various applications. Especially in those where the combination of temperature, pressure and wear resistance of rubber materials reach their limits and improved chemical resistance is required. U540-VI95-CR can also be used in applications with contact to foodstuff, especially in such applications where the cleaning process with CIP fluids is done.

Available certificates

- Conform to (EC) No 1935/2004 and (EC) No 10/2011
- Conform to positive list of FDA 21 CFR 177.1680
- 3A sanitary standard

Analysis and Evaluation

Values mentioned above are based on several tests performed during development and production of the material. Tests have been performed on standard test pieces specified within the relevant standard within the laboratory. Tests performed on any other pieces which are not related to the corresponding standard or made out of any (semi)finished part or any other part deviating in production process, dimension or age of the material from above may result in different values. The data represent our present empirical values and do not disengage the processor or user from his obligation to examine the usage of the material for his specific application.

v1.2

We reserve the right to update this data sheet from time to time if new empirical values are available. Errors and omissions excepted.

V1.1

Material Data Sheet U550-GM95

Polyurethane U550-GM95 – dark red (Low Friction Polyurethane)

General

U550-GM95 is a MoS₂ filled, hydrolysis-resistant (H-PU), casted Polyurethane, based on MDI, Polycarbonate Polyol and certain additives. It is recommended in application where reduced friction and poor lubrication is an issue. The material is able to reduce or eliminate the stick-slip effect when it appears.

Physical properties

Density:	DIN 53479	g/cm ³	1,16 ±0,03
Hardness at 23°C:	DIN 53505	Shore A	95 ±2
Hardness at +100°C:	DIN 53505	Shore A	93 ±2
100% Modulus:	DIN 53504	N/mm ²	≥ 10
300% Modulus:	DIN 53504	N/mm ²	≥ 30
Tensile strength:	DIN 53504	N/mm ²	≥ 45
Elongation at break:	DIN 53504	%	≥ 320
Tear strength:	DIN 53515	kN/m	≥ 110
Compression set, 24h, 70°C, 25%:	DIN 53517	%	≤ 25
Compression set, 24h, 100°C, 25%:	DIN 53517	%	≤ 35

Temperature range: -30°C to 125°C

Chemical resistance

Resistant to: Water up to 90°C, Sea Water, Mineral Oils, Vegetable Oils, Silicone Oils, Ozone, Oxygen (cold), HFA fluids, HFB fluids

Not Resistant to: Steam, conc. Acids and Lyes, conc. Alcohols, Solvents, HFD fluids

Main application

Dynamic applications, mostly used for U-seals, wipers, packings and rotary seals up to 400 bar pressure in standard hydraulics and applications with poor lubrication or even pneumatics. Due to its outstanding hydrolysis resistance it can be used in the most common hydraulic fluids, oil in water emulsions but also water power applications, applications in the mining industry and presses. U550-GM95 shall also be preferred in machinery with rough and worn sliding surfaces.

Analysis and Evaluation

Values mentioned above are based on several tests performed during development and production of the material. Tests have been performed on standard test pieces specified within the relevant standard within the laboratory. Tests performed on any other pieces which are not related to the corresponding standard or made out of any (semi)finished part or any other part deviating in production process, dimension or age of the material from above may result in different values. The data represent our present empirical values and do not disengage the processor or user from his obligation to examine the usage of the material for his specific application.

We reserve the right to update this data sheet from time to time if new empirical values are available. Errors and omissions excepted.

V1.2

Material Data Sheet U570-D57

Polyurethane U570-D57 – blue (Hard Grade Polyurethane)

General

U570-D57 is a hydrolysis-resistant (H-PU), casted Polyurethane, based on MDI, Polycarbonate Polyol and certain additives. The hardness is adjusted at 57 Shore D which results in excellent extrusion resistance. Used as a dynamic sealing element in composite seals, easier installing and better sealing performance will be the main advantage of this material.

Physical properties

Density:	DIN 53479	g/cm ³	1,17 ±0,03
Hardness at 23°C:	DIN 53505	Shore D	57 ±3
100% Modulus:	DIN 53504	N/mm ²	≥ 12
300% Modulus:	DIN 53504	N/mm ²	≥ 25
Tensile strength:	DIN 53504	N/mm ²	≥ 40
Elongation at break:	DIN 53504	%	≥ 330
Tear strength:	DIN 53515	kN/m	≥ 130
Compression set, 24h, 70°C, 25%:	DIN 53517	%	≤ 25
Compression set, 24h, 100°C, 25%:	DIN 53517	%	≤ 35

Temperature range: -30°C to 125°C

Chemical resistance

Resistant to: Water up to 90°C, Sea Water, Mineral Oils, Vegetable Oils, Silicone Oils, Ozone, Oxygen (cold), HFA fluids, HFB fluids
Not Resistant to: Steam, conc. Acids and Lyes, conc. Alcohols, Solvents, HFD fluids

Main application

Seals and composite seals (with elastomer preload element), wipers, back-up or retainer rings up to 600 bar pressure in standard hydraulics or machinery with wider metal tolerances. Due to its outstanding hydrolysis resistance it can be used in the most common hydraulic fluids, oil in water emulsions but also water power applications, applications in the mining industry and presses. U570-D57 can also be used in applications with contact to foodstuff.

Available certificates

- Conform to (EC) No 1935/2004 and (EC) No 10/2011
- Conform to positive list of FDA 21 CFR 177.1680
- 3A sanitary standard

Analysis and Evaluation

Values mentioned above are based on several tests performed during development and production of the material. Tests have been performed on standard test pieces specified within the relevant standard within the laboratory. Tests performed on any other pieces which are not related to the corresponding standard or made out of any (semi)finished part or any other part deviating in production process, dimension or age of the material from above may result in different values. The data represent our present empirical values and do not disengage the processor or user from his obligation to examine the usage of the material for his specific application.

We reserve the right to update this data sheet from time to time if new empirical values are available. Errors and omissions excepted.

V1.2

Material Data Sheet U580-D57-G

Polyurethane U580-D57-G – grey (Hard Grade Polyurethane with MoS₂)

General

U580-D57-G is a MoS₂ filled, hydrolysis-resistant (H-PU), casted Polyurethane, based on MDI, Polycarbonate Polyol and certain additives. The hardness is adjusted at 57 Shore D which results in excellent extrusion resistance. Used as a dynamic sealing element in composite seals, easier installing and better sealing performance in combination with less friction and reduced stick-slip effect will be the main advantage of this material.

Physical properties

Density:	DIN 53479	g/cm ³	1,17 ±0,03
Hardness at 23°C:	DIN 53505	Shore D	57 ±3
100% Modulus:	DIN 53504	N/mm ²	≥ 13
300% Modulus:	DIN 53504	N/mm ²	≥ 25
Tensile strength:	DIN 53504	N/mm ²	≥ 45
Elongation at break:	DIN 53504	%	≥ 310
Tear strength:	DIN 53515	kN/m	≥ 120
Compression set, 24h, 70°C, 25%:	DIN 53517	%	≤ 25
Compression set, 24h, 100°C, 25%:	DIN 53517	%	≤ 30

Temperature range: -30°C to 125°C

Chemical resistance

Resistant to: Water up to 90°C, Sea Water, Mineral Oils, Vegetable Oils, Silicone Oils, Ozone, Oxygen (cold), HFA fluids, HFB fluids

Not Resistant to: Steam, conc. Acids and Lyes, conc. Alcohols, Solvents, HFD fluids

Main application

Seals and composite seals (with elastomer preload element), wipers, back-up or retainer rings up to 600 bar pressure in standard hydraulics, machinery with wider metal tolerances, applications with poor lubrication or rough and worn sliding surfaces. Due to its outstanding hydrolysis resistance it can be used in the most common hydraulic fluids, oil in water emulsions but also water power applications, applications in the mining industry and presses.

Analysis and Evaluation

Values mentioned above are based on several tests performed during development and production of the material. Tests have been performed on standard test pieces specified within the relevant standard within the laboratory. Tests performed on any other pieces which are not related to the corresponding standard or made out of any (semi)finished part or any other part deviating in production process, dimension or age of the material from above may result in different values. The data represent our present empirical values and do not disengage the processor or user from his obligation to examine the usage of the material for his specific application.

We reserve the right to update this data sheet from time to time if new empirical values are available. Errors and omissions excepted.

v1.2
V1.0

Material Data Sheet U203-G95

Polyurethane U203-G95 - green

General

U203-G95 is a hydrolysis – resistant (H-PU), casted Polyurethane, based on MDI, Polyether Polyol and certain additives. Due to very good physical properties and the resistance against most common hydraulic fluids and oil-water emulsions it usable for a wide range of sealing applications.

Physical properties

Density:	DIN 53479	g/cm ³	1,1 ±0,03
Hardness at 23°C:	DIN 53505	Shore A	95 ±2
Hardness at +100°C:	DIN 53505	Shore A	93 ±2
100% Modulus:	DIN 53504	N/mm ²	≥ 10
300% Modulus:	DIN 53504	N/mm ²	≥ 15
Tensile strength:	DIN 53504	N/mm ²	≥ 40
Elongation at break:	DIN 53504	%	≥ 400
Tear strength:	DIN 53515	kN/m	≥ 100
Compression set, 24h, 70°C, 25%:	DIN 53517	%	≤ 20
Compression set, 24h, 100°C, 25%:	DIN 53517	%	≤ 30

Temperature range: -30°C to 105°C

Chemical resistance

Resistant to: Water up to 90°C, Sea Water, Mineral Oils, Vegetable Oils, Silicone Oils, Ozone, Oxygen (cold), HFA fluids, HFB fluids

Not Resistant to: Steam, conc. Acids and Lyes, conc. Alcohols, Solvents, HFD fluids

Main application

Static and dynamic applications, mostly used for U-seals, wipers and packings up to 400 bar pressure in standard hydraulics. Due to its outstanding hydrolysis resistance it can be used in the most common hydraulic fluids, oil in water emulsions but also water power applications, applications in the mining industry and presses.

Analysis and Evaluation

Values mentioned above are based on several tests performed during development and production of the material. Tests have been performed on standard test pieces specified within the relevant standard within the laboratory. Tests performed on any other pieces which are not related to the corresponding standard or made out of any (semi)finished part or any other part deviating in production process, dimension or age of the material from above may result in different values. The data represent our present empirical values and do not disengage the processor or user from his obligation to examine the usage of the material for his specific application.

We reserve the right to update this data sheet from time to time if new empirical values are available. Errors and omissions excepted.

v1.2
V1.2