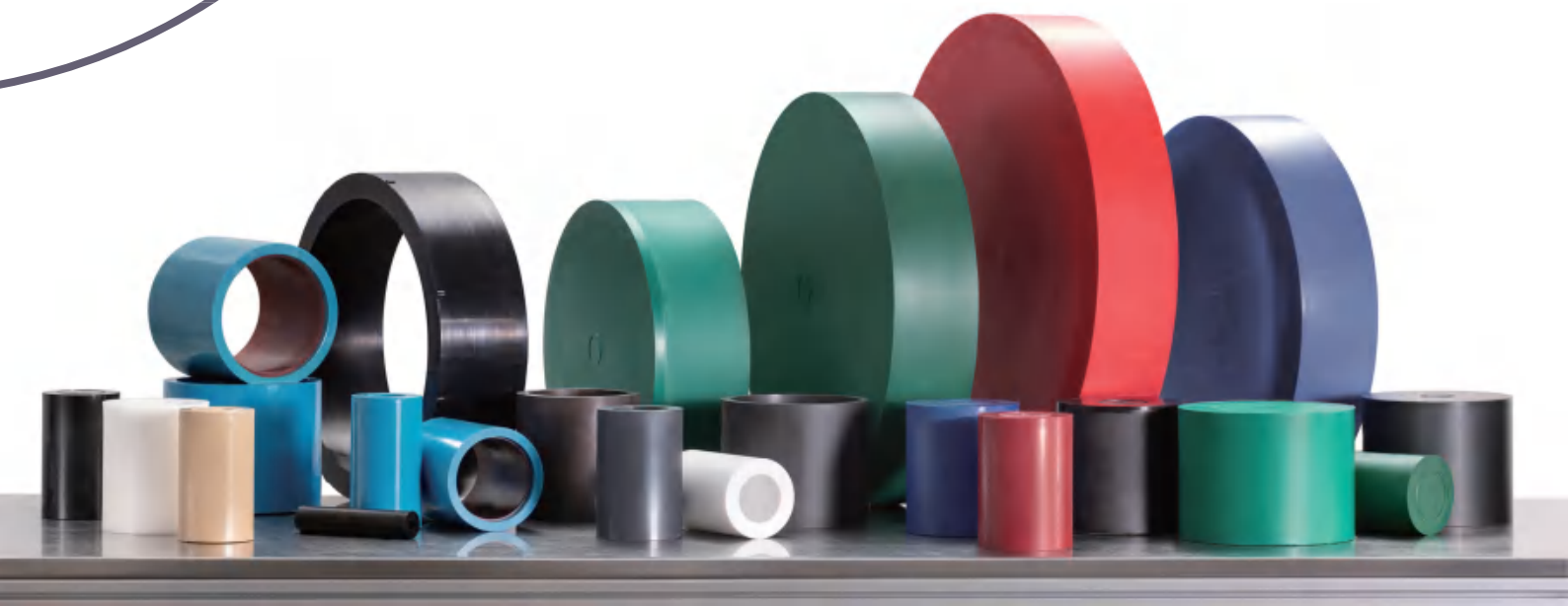
高性能密封材料

Sealing Materials

苏州普力密封科技有限公司

Suzhou Pulim Sealing Technology Co., Ltd



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公司简介 Company Profile

苏州普力密封科技有限公司坐落于苏州市苏相合作区，注册资金5312.5万。拥有25000㎡现代化厂房。

Suzhou Pulim Sealing Technology Co.Ltd. is located in the SIP-Xiangcheng Cooperation Development Zone with a registered capital of 53.125 million CNY and a 25000 m² modern factory.

苏州普力密封科技有限公司拥有智能化注塑车间、高端热塑性聚氨酯合成与造粒车间、聚四氟乙烯成型车间、橡胶制品注射成型车间、泛塞密封车间等，配备有ERP、MES、WMS一体化的数字工厂控制系统。是先进的智能化制造型企业。

Suzhou Pulim Sealing Technology Co. Ltd. has intelligent injection molding workshops, high-tech polyurethane and thermoplastic production workshop, PTFE molding workshop, rubber injection molding workshop, and energized seals workshop. It is equipped with an integrated digital factory control system of ERP, MES, and WMS, making it an advanced intelligent manufacturing enterprise.

苏州普力密封科技有限公司拥有自主的材料研发能力和一流的研发技术团队，专注于高端聚氨酯、橡胶、聚四氟乙烯以及聚醚醚酮等材料。自行研发生产高性能聚氨酯粒子料，采用注塑工艺生产优质聚氨酯密封材料和密封产品。同时具备自主研发和生产浇注型聚氨酯的技术，主要产品类型为大规格浇注桶料和特殊密封产品，与注塑工艺产品形成技术互补。是苏州市材料研发与生产重点项目。

Suzhou Pulim Sealing Technology Co., Ltd. has independent material research and development capabilities and a first-class R&D technical team, focusing on high-performance materials such as polyurethane, rubber, PTFE, PEEK and etc. We develop and produce high-performance TPU granulates and use injection molding technology to produce high-quality polyurethane sealing materials and sealing products. Furthermore we have the in-house capability of developing and producing casted PU materials, mainly for used for large diameter and customized seals products, complementary to the injection moulded products. It is a key material research and development and production project in Suzhou.

苏州普力密封科技有限公司同时拥有企业级理化实验室和动力实验室，拥有专业的检测和实验设备；为工程装备、农业装备、石油石化装备、运输装备等提供专业的密封解决方案。致力于成为拥有充分技术底蕴并保持技术迭代敏锐的国际一流工程聚合物研发制造企业。

Suzhou Pulim Sealing Technology Co., Ltd. has both an enterprise-level physical and chemical laboratory and a dynamic laboratory, with professional testing and experimental equipment, providing high-quality sealing solutions for industries such as engineering equipment, agriculture equipment, energy equipment, transportation equipment and etc. We are committed to becoming a world-class engineering polymer research and manufacturing enterprise with a strong technical foundation and keen sensitivity to technological iterations.

愿景 VISION

致力于成为国际一流的工程聚合物研发和生产企业。
Committed to becoming a world-class manufacturer of engineering polymer products.

企业文化 COMPANY ADHERE TO BE

坚韧 专业 温暖 致远
Persistent, Professional, Warm, Ambitious

随着当今工业水平的快速发展,对于密封产品的要求也变得越来越高,就要求密封材料较之过去必须面临更加高温高压、高转速低润滑的挑战,同时HFA,HFB,HFC等介质,以及植物油、合成酯等可降解油给聚合物密封材料带来了一个全新且更加困难的运行环境,所以针对不同的应用工况,选择合适的密封材料就显得尤为重要。

As the level of industrial development rapidly advances, the requirements for sealing products also increase. Sealing materials now face challenges such as higher temperatures, higher pressures, high rotational speeds, and low lubrication. Additionally, media such as HFA, HFB, HFC and biodegradable oils like vegetable oil and synthetic esters create a new and more difficult operating environment for polymeric seal materials. Therefore, choosing the right sealing material for different application conditions becomes particularly important.

我们根据多变的市场要求,一直致力于对密封材料的前沿开发,可以为客户提供本册提及的各种一流密封材料。

绝大多数材料由我公司自主研发及生产,同时我们还可提供诸如聚甲醛、尼龙 (PA6&PA6.6)等在内的各种工程塑料，各种填料四氟乙烯以及PEEK等耐高温聚合材料。

We have always been committed to the forefront development of sealing materials according to the ever-changing market demands, and we can provide customers with various top-quality sealing materials mentioned in this booklet. Most of the materials are independently developed and produced by our company. Additionally, we can provide various engineering plastics such as polyoxymethylene (POM) and polyamides (PA6 and PA6.6), high-temperature-resistant polymers like polyetheretherketone (PEEK) and various filled PTFE materials.

弹性体材料因为具有很强的弹性，所以其压缩形变对比其他聚合物材料更低。其主要分两类:橡胶材料(例如丁腈橡胶,氟橡胶,硅橡胶等)和热塑性弹性体（例如聚氨酯材料）。

Elastomer materials are showing good elasticity behaviour, so their deformation under load is low compared to other polymeric materials. They are mainly divided into two categories: rubber materials (such as nitrile rubber, fluorocarbon rubber, silicone rubber, etc.) and thermoplastic elastomers (such as polyurethane materials / TPU).

橡胶材料属聚合体，由各种硫化物高分子以化学方式交叉结合加工而成。其化学键决定了它在特定的介质内不易软化、溶解。另一方面，热塑性弹性体(如TPU材料)是基于物理交联的，这意味着它们可以使用传统的热塑性加工技术(注塑、浇注等)进行加工。通过热塑方式处理后,聚氨酯在一个很大的温度范围内都具有合成橡胶的典型特征遇热软化，可用传统的塑性人造橡胶处理技术(模压成型、浇注等)进行加工。聚氨酯材料有着优于纯化学合成橡胶的可溶性且较之更加无味。橡胶材料和聚氨酯材料在封行业中主要用于制作活塞密封、活塞杆密封、防尘密封以及静密封(O型圈等)。常用的橡胶密封材料主要是合成橡胶。由于合成橡胶的胶种较多，且各自的性能也各不相同。因此，在选用时除要求其必须满足上述使用要求外，还应根据不同胶种的特性和使用范围，参照密封件的工况条件，进行正确选择。

Rubber materials are vulcanized polymers formed by chemically cross-linking of polymeric base materials. Their chemical bonds determine that they do not easily soften or dissolve in specific media.

On the other hand, thermoplastic elastomers (such as TPU materials) are based on physical cross-linkings, means they can be processed using traditional thermoplastic processing techniques (injection molding, casting, etc.).

Through thermoplastic processing, polyurethane materials exhibit the typical characteristics of synthetic rubber materials over a wide temperature range, however softening when heated as well as have better solubility than purely chemically synthesized rubber materials and are less odorous. Rubber materials and polyurethane materials are mainly used in the sealing industry for making piston seals, rod seals, Wiper, and static seals (O-rings, etc.). The commonly used rubber sealing materials are mainly synthetic rubbers. Since there are many types of synthetic rubber, and their performances vary, when selecting, in addition to meeting the above usage requirements, the characteristics and application range of different rubber types should be considered, and the appropriate choice should be made according to the operating conditions of the sealing parts.

塑性材料是一种较之弹性体材料,在适用温度内更加坚硬的聚合体原料。由于塑性材料的化学结构,使其可以灵活的适用在不同的硬度和强度要求下。因为其在过度拉伸后不可恢复而且经过模具成型后容易产生部分变形,所以又被称之为塑料。塑性材料在密封行业主要用于制作挡圈、支撑环、导向环、轴承以及衬套等。

Plastic materials are polymers that are harder than elastomer materials within their applicable temperature range. Due to their chemical structure, plastic materials can flexibly meet different hardness and strength requirements. Because they cannot recover after excessive stretching and tend to partially deform after molding, they are also called plastics. In the sealing industry, plastic materials are mainly used to make back-up rings, retaining rings, guide rings, bearings, and bushings.

常用塑性材料有聚四氟乙烯、聚酰胺、聚甲醛、酚醛树脂、超高分子量聚乙烯、聚醚醚酮、聚酰亚胺，聚甲醛等。

本样本详细介绍了本公司研发生产的各种用于数控机床的高性能密封桶料。

Common plastic materials include PTFE, polyamide, polyoxymethylene, phenolic resin, ultra-high-molecular-weight polyethylene, polyether ether ketone, polyimide, etc.

This booklet details the various high-performance sealing materials developed and produced by our company for CNC machines.

聚氨酯材料

Polyurethane Materials

聚氨酯是由异氰酸酯和多元醇、扩链剂等原料制成的聚合物。通过改变原料种类及组成,可以大幅度地改变产品形态及其性能,得到从柔软到坚硬的最终产品。可以添加填料、自润滑剂、耐水剂等。聚氨酯在当今的密封技术中扮演着重要的角色。它们在全球密封市场上占有重要是市场份额。主要用作活塞和活塞杆密封（Y形圈）、防尘圈和组合密封的主密封原件。

Polyurethane is a polymer made from raw materials such as isocyanates, polyols as well as chain extenders, commonly called cross-linking agents. By altering the types and compositions of these raw materials, the form and properties of the final product can be significantly changed, ranging from soft to hard. Fillers, self-lubricating agents, and water repellents can also be added. Polyurethane plays an important role in modern sealing technology. They hold a significant market share in the global sealing market and are primarily used as main sealing elements for piston and piston rod seals (Y-rings),Wipers, and combined seals.

聚氨酯弹性体常见类型: Common Types of Polyurethane Elastomers

·热塑性TPU Thermoplastic TPU

·浇注型PU Cast PU

·混炼型MPUR · Mixed MPUR

聚氨酯优点: Advantages of Polyurethane

·强度高 High strength

·弹性好 Good elasticity

·硬度范围宽 Wide range of hardness

·耐磨性优异 Excellent wear resistance

·撕裂强度高 High tear strength

·耐油性好Good oil resistance

聚氨酯缺点: Disadvantages of Polyurethane

·滞后生热量大High hysteresis heating

·有限耐温性 Limited temperature resistance,

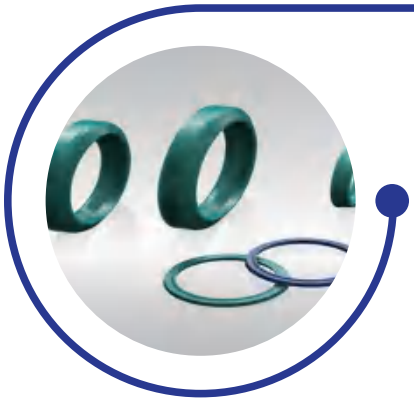
·反复压缩易变形 Repeated compression deformation

·热量易积蓄 Heat accumulates easily

·热量散发较慢 Slow heat dissipation

·高速运转时易损坏 Prone to damage at high speeds

苏州普力密封科技有限公司能够为我们的客户提供高性能的注塑型聚氨酯（TPU），我们的制造技术保证在聚合反应过程中的优异的物理性能，也可以提供特殊定制的聚合物材料。同时，为满足有大规格及超大规格（直径900-2500MM）的客户需求，我们也提供自主研发和生产的高性能浇注型聚氨酯（CPU）



Suzhou Pulim Sealing Technology Co. Ltd. can provide our customers with high-performance injection-molded polyurethane (TPU). Our manufacturing technology ensures the development of excellent physical properties during the polymerization process, providing both, standardized as well as customized material grades, always resulting in superior material quality. Additionally, to meet the needs of customers requiring large and extra-large specifications (900-2500mm), we also offer high performance cast polyurethane (CPU), developed and produced in-house.

备注：批次间颜色会存在轻微差异，不影响产品性能及使用。

聚氨酯材料一览 Polyurethane Materials		PLMPUR 耐液压油聚氨酯	PLMPUR -H 耐高温水解聚氨酯	PLMPUR -SL 自润滑聚氨酯	PLMPUR -LT 耐低温聚氨酯	PLMPUR -X 超高硬度耐液压油聚氨酯	PLMPUR -XH 超高硬度耐高温水解聚氨酯	PLMPUR -XSL 超高硬度自润滑聚氨酯	PLMPUR -H LD 浇筑型大规格聚氨酯
材料颜色 Material colour									
材料硬度 hardness 邵氏 A/ D Shore A/ D		95/48	95/48	95/48	95/48	97/57	97/59	97/57	95/48
使用温度 temperature, ° C	**Min.**	-30	-20	-20	-50	-30	-20	-20	-30
	Max.	110	115	115	110	110	115	115	110
介质 Media		油，臭氧，微生物 Oil ozone, microbes ,	油、热水、热空气、臭氧、合成酯和天然酯 Oil hot water, hot air, ozone, syntheti c and native esters,	气(171)、水、臭氧 gas (171),wat er, ozone,	油、水，臭氧，微生物，Oil, water, ozone, microbe s,	油，臭氧，微生物 oil , ozone, microbes ,	油、热水、热空气、臭氧、合成酯和天然酯 oil,hot water, hot air, ozone, syntheti c and native esters,	气(171)、水、臭氧 oil , gas (171),wa ter, ozone	油、热水、热空气、臭氧、合成酯和天然酯 Oil hot water, hot air, ozone, synthetic and native esters,

PLMPUR（注塑型TPU）

材料介绍 General Information:

PLMPUR 是一种基于聚己内酯多元醇的热塑性聚氨酯弹性体。

该材料具有优异的拉伸性能和撕裂强度，低压缩形变，以及出色的耐磨性。

PLMPUR主要用于具有高机械性能和耐磨性的密封应用，并且具有非常好的抗矿物油液压油的性能。

此外，该材料具有良好的耐臭氧性和耐候性。

PLMPUR is a thermoplastic polyurethane elastomer based on polycaprolactone polyol.

This material features excellent tensile properties and tear strength, low compression deformation, and outstanding wear resistance.

PLMPUR is primarily used in sealing applications that requiring high mechanical performance and wear resistance, and it has very good resistance to mineral oil and hydraulic oil.

Additionally, this material has good ozone resistance and weather resistance.

★ 物性介绍 Physical properties

颜色 Colour:			绿色 Green
硬度 Hardness:	DINISO 7619 （3 sec）	ShoreA	95 +/-2
硬度 Hardness:	DINISO 7619 （3 sec）	ShoreD	48 +/-2
密度 Density:	DIN EN ISO 1183-1	g/cm3	1.18+/-0.02
100% 定伸强度 100% Modulus:	DIN53504	N/mm2	≥12
拉伸强度 Tensile strength:	DIN53504	N/mm2	≥48
断裂伸长率 Elongation at break:	DIN53504	%	≥450
撕裂强度 Tear strength:	DIN ISO 34-1	N/mm	≥110
压缩永久变形 Compression set: 24h/70°C:	DIN ISO 815	%	≤27
压缩永久变形 Compression set:24h/100°C	DIN ISO 815	%	≤33
磨耗 Abrasion:	DIN ISO4649	mm3	≤17
最低使用温度 Min.service temperature:	ISO11357-2	°C	-30
最高使用温度 Max.service temperature:	ISO11357-2	°C	110

* 24 h 70°C 20% 压缩率/** 24 h 100°C 20% 压缩率

* 24 h 70°C 20% deflection/** 24 h 100°C 20% deflection

PLMPUR-H (注塑型TPU)

材料介绍 General Information:

PLMPUR-H是一种基于聚碳酸酯多元醇的耐水解热塑性聚氨酯弹性体。

与PLMPUR相比，该材料具有相似的机械性能，但具有良好的耐水性，生物可降解性以及阻燃流体和添加添加剂的矿物油。

PLMPUR-H主要用于耐水解和其他化学品(也包括许多极性液压流体)的密封应用，同时具有高要求的机械性能和耐磨性。

PLMPUR-H is a hydrolysis-resistant thermoplastic polyurethane elastomer based on polycarbonate polyol.

Compared to PLMPUR, this material has similar mechanical properties but offers good water resistance, biodegradability, and resistance to flame-retardant fluids and mineral oils with additives.

PLMPUR-H is mainly used in sealing applications that require hydrolysis resistance and resistance to other chemicals (including many polar hydraulic fluids), while also demanding high mechanical performance and wear resistance.

物性介绍 Physical properties

颜色 Colour:			红色 Red
硬度 Hardness:	DINISO 7619 (3 sec)	ShoreA	95 +/-2
硬度 Hardness:	DINISO 7619 (3 sec)	ShoreD	48 +/-2
密度 Density:	DIN EN ISO 1183-1	g/cm3	1.18+/-0.02
100% 定伸强度 100% Modulus:	DIN53504	N/mm2	≥12
拉伸强度 Tensile strength:	DIN53504	N/mm2	≥50
断裂伸长率 Elongation at break:	DIN53504	%	≥350
撕裂强度 Tear strength:	DIN ISO 34-1	N/mm	≥110
压缩永久变形 Compression set: 24h/70°C:	DIN ISO 815	%	≤27
压缩永久变形 Compression set:24h/100°C	DIN ISO 815	%	≤33
磨耗 Abrasion:	DIN ISO4649	mm3	≤17
最低使用温度 Min.service temperature:	ISO11357-2	°C	-20
最高使用温度 Max.service temperature:	ISO11357-2	°C	110

* 24 h 70°C 20% 压缩率/*24 h 100°C 20% 压缩率

* 24 h 70°C 20% deflection/*24 h 100°C 20% deflection

PLMPUR-LT (注塑型TPU)

材料介绍 General Information:

PLMPUR-LT是一种基于特殊聚己内酯多元醇等级的热塑性聚氨酯弹性体，可满足低温应用的需求。

该材料与PLMPUR具有相似的机械性能，但结合了非常好的低温性能。

PLMPUR-LT主要用于具有高机械性能和耐磨性的密封应用，应用温度低至-50°C。

PLMPUR-LT is a thermoplastic polyurethane elastomer based on a special grade of polycaprolactone polyol, designed to meet the demands of low-temperature applications.

This material has similar mechanical properties to PLMPUR but combines them with excellent low-temperature performance.

PLMPUR-LT is primarily used in sealing applications that require high mechanical performance and wear resistance, with application temperatures as low as -50°C.

物性介绍 Physical properties

颜色 Colour:			蓝色 Blue
硬度 Hardness:	DINISO 7619 (3 sec)	ShoreA	95 +/-2
硬度 Hardness:	DINISO 7619 (3 sec)	ShoreD	48 +/-2
密度 Density:	DIN EN ISO 1183-1	g/cm3	1.16+/-0.02
100% 定伸强度 100% Modulus:	DIN53504	N/mm2	≥11
拉伸强度 Tensile strength:	DIN53504	N/mm2	≥45
断裂伸长率 Elongation at break:	DIN53504	%	≥430
撕裂强度 Tear strength:	DIN ISO 34-1	N/mm	≥110
压缩永久变形 Compression set: 24h/70°C:	DIN ISO 815	%	≤27
压缩永久变形 Compression set:24h/100°C	DIN ISO 815	%	≤33
磨耗 Abrasion:	DIN ISO4649	mm3	≤17
最低使用温度 Min.service temperature:	ISO11357-2	°C	-50
最高使用温度 Max.service temperature:	ISO11357-2	°C	110

* 24 h 70°C 20% 压缩率/** 24 h 100°C 20% 压缩率

* 24 h 70°C 20% deflection/** 24 h 100°C 20% deflection

PLMPUR-X (注塑型TPU)

材料介绍 General Information:

PLMPUR-X是一种基于聚己内酯多元醇的热塑性聚氨酯弹性体。

与PLMPUR相比，该材料具有更高的硬度 58D，更高的耐压性，同时具有出色的摩擦和磨损性能。

PLMPUR-X主要用于具有优异的机械性能，结合低摩擦特性和无润滑工况的密封应用，如矿物油液压油缸中的组合密封。

PLMPUR-X is a thermoplastic polyurethane elastomer based on polycaprolactone polyol.

Compared to PLMPUR, this material has higher hardness (58D), higher pressure resistance, and excellent friction and wear performance.

PLMPUR-X is primarily used in sealing applications that require superior mechanical performance combined with low friction characteristics and non-lubricated conditions, such as combination seals in mineral oil hydraulic cylinders.

物性介绍 Physical properties

颜色 Colour:			深绿色 Dark Green
硬度 Hardness:	DINISO 7619 （3 sec）	ShoreA	97+/-2
硬度 Hardness:	DINISO 7619 （3 sec）	ShoreD	58 +/-2
密度 Density:	DIN EN ISO 1183-1	g/cm3	1.20+/-0.02
100% 定伸强度 100% Modulus:	DIN53504	N/mm2	≥18
拉伸强度 Tensile strength:	DIN53504	N/mm2	≥48
断裂伸长率 Elongation at break:	DIN53504	%	≥400
撕裂强度 Tear strength:	DIN ISO 34-1	N/mm	≥140
压缩永久变形 Compression set: 24h/70°C:	DIN ISO 815	%	≤27
压缩永久变形 Compression set:24h/100°C	DIN ISO 815	%	≤33
磨耗 Abrasion:	DIN ISO4649	mm3	≤17
最低使用温度 Min.service temperature:	ISO11357-2	°C	-30
最高使用温度 Max.service temperature:	ISO11357-2	°C	110

* 24 h 70°C 20% 压缩率/** 24 h 100°C 20% 压缩率

* 24 h 70°C 20% deflection/** 24 h 100°C 20% deflection

PLMPUR-XH (注塑型TPU)

材料介绍 General Information:

PLMPUR-XH是一种基于聚碳酸酯多元醇的耐水解热塑性聚氨酯弹性体。

与PLMPUR-H相比，该材料具有更高的硬度 60D，更高的耐压性，同时具有出色的摩擦和磨损性能。

由于具有良好的耐水解性和耐化学性，该材料最适合用于具有化学腐蚀性的工作流体(如水基压力流体)以及含有添加剂的矿物油中的组合密封。

PLMPUR-XH is a hydrolysis-resistant thermoplastic polyurethane elastomer based on polycarbonate polyol.

Compared to PLMPUR-H, this material has higher hardness (60D), higher pressure resistance, and excellent friction and wear performance.

Due to its good hydrolysis resistance and chemical resistance, this material is best suited for combination seals in chemically corrosive working fluids (such as water-based pressure fluids) and mineral oils with additives.

物性介绍 Physical properties

颜色 Colour:			深红色 Dark Red
硬度 Hardness:	DINISO 7619 （3 sec）	ShoreA	97+/-2
硬度 Hardness:	DINISO 7619 （3 sec）	ShoreD	60+/-2
密度 Density:	DIN EN ISO 1183-1	g/cm3	1.22+/-0.02
100% 定伸强度 100% Modulus:	DIN53504	N/mm2	≥20
拉伸强度 Tensile strength:	DIN53504	N/mm2	≥50
断裂伸长率 Elongation at break:	DIN53504	%	≥300
撕裂强度 Tear strength:	DIN ISO 34-1	N/mm	≥140
压缩永久变形 Compression set: 24h/70°C:	DIN ISO 815	%	≤27
压缩永久变形 Compression set:24h/100°C	DIN ISO 815	%	≤33
磨耗 Abrasion:	DIN ISO4649	mm3	≤17
最低使用温度 Min.service temperature:	ISO11357-2	°C	-20
最高使用温度 Max.service temperature:	ISO11357-2	°C	110

* 24 h 70°C 20% 压缩率/** 24 h 100°C 20% 压缩率

* 24 h 70°C 20% deflection/** 24 h 100°C 20% deflection

PLMPUR-SL (注塑型TPU)

材料介绍 General Information:

PLMPUR-SL是一种基于聚碳酸酯多元醇的聚氨酯弹性体，与固体润滑剂相结合。

该材料具有出色的摩擦学特性，意味着优越的滑动性能，在较差的润滑甚至无润滑的工况条件下具有更高的耐磨性。其他物理性能，例如拉伸性能和弹性性能与PLMPUR-H相似。PLMPUR-SL主要用于对耐磨性和摩擦损耗有高要求的密封应用。

该材料特别适用于高速移动，甚至低速和静止的应用，以及无润滑介质的工况。此款密封材料推荐在润滑性能差的工作应用中使用，如纯水工况。

PLMPUR-SL is a polyurethane elastomer based on polycarbonate polyol, combined with solid lubricants.

This material has excellent tribological properties, meaning superior sliding performance, and higher wear resistance under poor lubrication or even non-lubricated conditions. Other physical properties, such as tensile performance and elasticity, are similar to PLMPUR-H.

PLMPUR-SL is primarily used in sealing applications with high requirements for wear resistance and frictional loss.

This material is particularly suitable for high-speed movement, as well as low-speed and stationary applications, and for conditions without lubricating media. This sealing material is recommended for use in applications with poor lubrication performance, such as pure water conditions.

物性介绍 Physical properties

颜色 Colour:			黑色 Black
硬度 Hardness:	DINISO 7619 （3 sec）	ShoreA	95 +/-2
硬度 Hardness:	DINISO 7619 （3 sec）	ShoreD	48 +/-2
密度 Density:	DIN EN ISO 1183-1	g/cm3	1.21+/-0.02
100% 定伸强度 100% Modulus:	DIN53504	N/mm2	≥15
拉伸强度 Tensile strength:	DIN53504	N/mm2	≥48
断裂伸长率 Elongation at break:	DIN53504	%	≥350
撕裂强度 Tear strength:	DIN ISO 34-1	N/mm	≥110
压缩永久变形 Compression set: 24h/70°C:	DIN ISO 815	%	≤27
压缩永久变形 Compression set:24h/100°C	DIN ISO 815	%	≤33
磨耗 Abrasion:	DIN ISO4649	mm3	≤17
最低使用温度 Min.service temperature:	ISO11357-2	°C	-20
最高使用温度 Max.service temperature:	ISO11357-2	°C	110

* 24 h 70°C 20% 压缩率/** 24 h 100°C 20% 压缩率

* 24 h 70°C 20% deflection/** 24 h 100°C 20% deflection

PLMPUR-XSL (注塑型TPU)

材料介绍 General Information:

PLMPUR-XSL是一种基于聚碳酸酯多元醇的抗水解热塑性聚氨酯弹性体，填充固体润滑剂。

与PLMPUR-SL相比，该材料具有更高的硬度(SHORE D 60)和更高的耐压性，进一步改善了滑动性能。

可使用PLMPUR-XSL代替PLMPUR-X或PLMPUR-XH，在润滑不良的工况以及无润滑介质的工况使用。

PLMPUR-XSL is a thermoplastic polyurethane elastomer based on polycarbonate polyols and filled with solid lubricants. Compared to PLMPUR-SL, this material offers higher hardness (Shore D 60) and greater compressive strength, further enhancing its sliding performance. PLMPUR-XSL can be used as a replacement for PLMPUR-X or PLMPUR-XH in conditions with poor lubrication or dry running conditions.

物性介绍 Physical properties

颜色 Colour:			黑色 Black
硬度 Hardness:	DINISO 7619 （3 sec）	ShoreA	97+/-2
硬度 Hardness:	DINISO 7619 （3 sec）	ShoreD	60+/-2
密度 Density:	DIN EN ISO 1183-1	g/cm3	1.22+/-0.02
100% 定伸强度 100% Modulus:	DIN53504	N/mm2	≥20
拉伸强度 Tensile strength:	DIN53504	N/mm2	≥48
断裂伸长率 Elongation at break:	DIN53504	%	≥300
撕裂强度 Tear strength:	DIN ISO 34-1	N/mm	≥140
压缩永久变形 Compression set: 24h/70°C:	DIN ISO 815	%	≤27
压缩永久变形 Compression set:24h/100°C	DIN ISO 815	%	≤33
磨耗 Abrasion:	DIN ISO4649	mm3	≤17
最低使用温度 Min.service temperature:	ISO11357-2	°C	-20
最高使用温度 Max.service temperature:	ISO11357-2	°C	110

* 24 h 70°C 20% 压缩率/** 24 h 100°C 20% 压缩率

* 24 h 70°C 20% deflection/** 24 h 100°C 20% deflection

PLMPUR-H LD (浇注型CPU)

材料介绍 General Information:

PLMPUR-H LD 是一种抗水解聚氨酯弹性体，化学稳定性与PLMPUR-H材料相似。

通常，PLMPUR-H LD用于直径范围从900毫米到2500毫米的密封，也可用于生产定制化大规格浇注产品。

PLMPUR-H LD is a hydrolysis-resistant polyurethane elastomer with chemical stability similar to that of PLMPUR-H. It is typically used for seals with diameters ranging from 900 millimeters to 2500 millimeters, but also used for customized products with e.g. large cross sections.

物性介绍 Physical properties

颜色 Colour:			红 Red
硬度 Hardness:	DINISO 7619 (3 sec)	ShoreA	95 +/-2
硬度 Hardness:	DINISO 7619 (3 sec)	ShoreD	48 +/-2
密度 Density:	DIN EN ISO 1183-1	g/cm3	1.18+/-0.02
100% 定伸强度 100% Modulus:	DIN53504	N/mm2	≥11
拉伸强度 Tensile strength:	DIN53504	N/mm2	≥45
断裂伸长率 Elongation at break:	DIN53504	%	≥330
撕裂强度 Tear strength:	DIN ISO 34-1	N/mm	≥90
压缩永久变形 Compression set: 24h/70°C:	DIN ISO 815	%	≤30
压缩永久变形 Compression set:24h/100°C	DIN ISO 815	%	≤40
磨耗 Abrasion:	DIN ISO4649	mm3	≤17
最低使用温度 Min.service temperature:	ISO11357-2	°C	-20
最高使用温度 Max.service temperature:	ISO11357-2	°C	110

* 24 h 70°C 20% 压缩率/** 24 h 100°C 20% 压缩率

* 24 h 70°C 20% deflection/** 24 h 100°C 20% deflection

备注

上述所有测试方法和数值均符合ISO或DIN标准。性能已在标准试样上确认，不与任何成品直接相关。所有测试均在实验室条件下进行。上述值是标准值，满足每批材料的相关公差。

All the testing methods and values mentioned comply with ISO or DIN standards. The performance has been confirmed on standard samples and is not directly related to any finished products. All tests were conducted under laboratory conditions. The values provided are standard values and meet the relevant tolerances for each batch of material.

橡胶材料
Rubber Materials

橡胶材料是高分子基材经化学交联而形成的硫化聚合物，由各种硫化物高分子以化学方式交叉结合加工而成。其化学键决定了它在特定的介质内不易软化、溶解。橡胶材料主要用于制作活塞密封、活塞杆密封、防尘密封以及静密封(0型圈等)。Rubber materials are vulcanized polymers formed by chemically cross-linking of polymeric base materials. The chemical bonds determine that they do not easily soften or dissolve in specific media. Rubber materials are primarily used for manufacturing piston seals, rod seals, Wipers, and static seals (such as O-rings).

橡胶以其特有的性能，广泛应用于密封领域。苏州普力密封可提供各类橡胶桶料及制品。
Rubber, with its unique properties, is widely used in the sealing industry. Suzhou Pulim Seals offers a variety of rubber materials and products.

材料 Material	PLMRUBBER-N	PLMRUBBER-F	PLMRUBBER-F-BLACK	PLMRUBBER-HN	PLMRUBBER-E	PLMRUBBER-S
成分 Componets	丁腈橡胶 Nitrile rubber	氟橡胶 Fluororubber	黑色氟橡胶 Fluororubber black	氢化丁腈橡胶 Hydrogenated nitrile rubber	三元乙丙橡胶 Ethylene propylene diene rubber	硅胶 Silicone Ruber
颜色 Color	白色、黑色 white, black	棕色 brown	黑色 black	黑色 black	黑色 black	红棕色 Red-brown
桶料硬度 邵氏 A hardness Shore A	85±5	85±5	85±5	85±5	85±5	85±5
使用温度范围 operating temperature range	-30℃~110℃	-20℃~210℃	-20℃~210℃	-30℃~150℃	-50℃~150℃	-60℃~210℃

更多橡胶制品详询普力

PLMRUBBER-N

材料介绍
General Information:

丁腈橡胶是丁二烯与丙烯腈的共聚物，是通用耐油橡胶，丁二烯与丙烯腈比例不同，其性能差异较大，丙烯腈含量提高，其耐油性、耐磨性提高，但是耐低温性能降低。配方中硫化体系决定丁腈橡胶的耐油性、耐热性、耐磨性、撕裂性能、回弹性能压缩永久变形；增塑剂的种类与耐油性相关，酯类慎用;防尘圈用的丁腈橡胶注意抗臭氧老化。其次注意材质硬度,兼顾抗压挤出与回弹的关系。

Nitrile rubber is a copolymer of butadiene and acrylonitrile, commonly used for its oil resistance. The performance of nitrile rubber varies significantly with the ratio of butadiene to acrylonitrile; higher acrylonitrile content improves oil resistance and wear resistance but reduces low-temperature performance. The curing system in the formulation affects the oil resistance, heat resistance, wear resistance, tear resistance, resilience, and permanent compression deformation of nitrile rubber. The type of plasticizer used is related to oil resistance, with esters being used cautiously. For Wipers, nitrile rubber should be resistant to ozone aging. Additionally, it is important to consider the hardness of the material to balance compression extrusion and rebound performance.

物性介绍 Physical properties

颜色 Colour:			黑色 Black /白色 White
硬度 Hardness:	DINISO 7619 (3 sec)	ShoreA	85 +/-5
硬度 Hardness:	DINISO 7619 (3 sec)	ShoreD	34
密度 Density:	DIN EN ISO 1183-1	g/cm3	1.28±0.03
100% 定伸强度 100% Modulus:	DIN53504	N/mm2	≥11
拉伸强度 Tensile strength:	DIN53504	N/mm2	≥17
断裂伸长率 Elongation at break:	DIN53504	%	≥155
撕裂强度 Tear strength:	DIN ISO 34-1	N/mm	≥20
压缩永久变形 Compression set: 24h/70°C:	DIN ISO 815	%	≤15
压缩永久变形 Compression set:24h/100°C	DIN ISO 815	%	≤15
磨耗 Abrasion:	DIN ISO4649	mm3	≤90
最低使用温度 Min.service temperature:	ISO11357-2	°C	-30
最高使用温度 Max.service temperature:	ISO11357-2	°C	110

PLMRUBBER-F
PLMRUBBER-F-BLACK

材料介绍
General Information:

氟橡胶是指主链或侧链的碳原子上含有氟原子的合成高分子弹性体。氟原子的引入，赋予橡胶优异的耐热性、抗氧化性、耐油性、耐腐蚀性和耐大气老化性，在航天、航空、汽车、石油和家用电器等领域得到了广泛应用。

Fluororubber refers to synthetic elastomers with fluorine atoms attached to the carbon atoms in the main or side chains. The introduction of fluorine atoms imparts excellent heat resistance, oxidation resistance, oil resistance, corrosion resistance, and atmospheric aging resistance to the rubber. As a result, it is widely used in aerospace, aviation, automotive, petroleum, and household appliances.

物性介绍 Physical properties

颜色 Colour:			黑色 Black	棕色 Brown
硬度 Hardness:	DINISO 7619 (3 sec)	ShoreA	85 +/-5	85 +/-5
硬度 Hardness:	DINISO 7619 (3 sec)	ShoreD	34	34
密度 Density:	DIN EN ISO 1183-1	g/cm3	2.01±0.03	2.48±0.03
100% 定伸强度 100% Modulus:	DIN53504	N/mm2	≥7	≥7
拉伸强度 Tensile strength:	DIN53504	N/mm2	≥11	≥11
断裂伸长率 Elongation at break:	DIN53504	%	≥200	≥200
撕裂强度 Tear strength:	DIN ISO 34-1	N/mm	≥20	≥20
压缩永久变形 Compression set: 24h/70°C:	DIN ISO 815	%	≤15	≤15
压缩永久变形 Compression set:24h/175°C	DIN ISO 815	%	≤20	≤20
磨耗 Abrasion:	DIN ISO4649	mm3	≤150	≤150
最低使用温度 Min.service temperature:	ISO11357-2	°C	-20	-20
最高使用温度 Max.service temperature:	ISO11357-2	°C	210	210

PLMRUBBER-HN

材料介绍
General Information:

氢化丁腈橡胶是丁腈橡胶中分子链上的碳碳双键加氢饱和得到的产物，故也称为高饱和丁腈橡胶 。

氢化丁腈橡胶具有良好耐油性能（对燃料油、润滑油、芳香系溶剂耐抗性良好）；并且 由于其高度饱和的结构，使其具良好的耐热性能，优良的耐化学腐蚀性能（对氟利昂、酸、碱的具有良好的抗耐性），优异的耐臭氧性能，较高的抗压缩永久变形性能；同时氢化丁腈橡胶还具有高强度，高撕裂性能、耐磨性能优异等特点，是综合性能极为出色的橡胶之一。

Hydrogenated nitrile rubber is the product of hydrogenating the carbon-carbon double bonds in the molecular chain of nitrile rubber, also known as highly saturated nitrile rubber. HNBR possesses excellent oil resistance (good resistance to fuel oils, lubricating oils, and aromatic solvents). Its highly saturated structure provides good heat resistance, excellent chemical corrosion resistance (resistant to freon, acids, and bases), outstanding ozone resistance, and high resistance to compression set. Additionally, HNBR features high strength, superior tear resistance, and excellent wear resistance, making it one of the rubbers with the most outstanding comprehensive properties.

物性介绍 Physical properties

颜色 Colour:			黑色 Black
硬度 Hardness:	DINISO 7619 （3 sec)	ShoreA	85 +/-5
硬度 Hardness:	DINISO 7619 （3 sec)	ShoreD	34
密度 Density:	DIN EN ISO 1183-1	g/cm3	1.23±0.03
100% 定伸强度 100% Modulus:	DIN53504	N/mm2	≥10
拉伸强度 Tensile strength:	DIN53504	N/mm2	≥18
断裂伸长率 Elongation at break:	DIN53504	%	≥200
撕裂强度 Tear strength:	DIN ISO 34-1	N/mm	≥30
压缩永久变形 Compression set: 24h/70°C:	DIN ISO 815	%	≤15
压缩永久变形 Compression set:24h/100°C	DIN ISO 815	%	≤20
磨耗 Abrasion:	DIN ISO4649	mm3	≤90
最低使用温度 Min.service temperature:	ISO11357-2	°C	-30
最高使用温度 Max.service temperature:	ISO11357-2	°C	150

PLMRUBBER-E

材料介绍
General Information:

三元乙丙橡胶是乙烯、丙烯和少量的非共轭二烯烃的共聚物，是乙丙橡胶的一种，以EPDM（ETHYLENE PROPYLENE DIENE MONOMER）表示，因其主链是由化学稳定的饱和烃组成，只在侧链中含有不饱和双键，故其耐臭氧、耐热、耐候等耐老化性能优异，可广泛用于汽车部件、建筑用防水材料、电线电缆护套、耐热胶管、胶带、汽车密封件等领域。

Ethylene propylene diene rubber (EPDM) is a copolymer of ethylene, propylene, and a small amount of non-conjugated diene. It is a type of ethylene-propylene rubber. Because its main chain consists of chemically stable saturated hydrocarbons and only the side chains contain unsaturated double bonds, EPDM exhibits excellent aging properties, including ozone resistance, heat resistance, and weather resistance. It is widely used in automotive components, construction waterproofing materials, wire and cable sheathing, heat-resistant hoses, tapes, and automotive seals.

物性介绍 Physical properties

颜色 Colour:			黑色 Black
硬度 Hardness:	DINISO 7619 （3 sec)	ShoreA	85 +/-5
硬度 Hardness:	DINISO 7619 （3 sec)	ShoreD	34
密度 Density:	DIN EN ISO 1183-1	g/cm3	1.22±0.03
100% 定伸强度 100% Modulus:	DIN53504	N/mm2	≥10
拉伸强度 Tensile strength:	DIN53504	N/mm2	≥14
断裂伸长率 Elongation at break:	DIN53504	%	≥130
撕裂强度 Tear strength:	DIN ISO 34-1	N/mm	≥15
压缩永久变形 Compression set: 24h/70°C:	DIN ISO 815	%	≤15
压缩永久变形 Compression set:24h/100°C	DIN ISO 815	%	≤20
磨耗 Abrasion:	DIN ISO4649	mm3	≤120
最低使用温度 Min.service temperature:	ISO11357-2	°C	-50
最高使用温度 Max.service temperature:	ISO11357-2	°C	150

PLMRUBBER-S

材料介绍
General Information:

硅橡胶是指主链由硅和氧原子交替构成，硅原子上通常连有两个有机基团的橡胶。普通的硅橡胶主要由含甲基和少量乙烯基的硅氧链节组成。硅橡胶耐低温性能良好，一般在-55℃下仍能工作。硅橡胶的耐热性能也很突出，在180℃下可长期工作，稍高于200℃也能承受数周或更长时间仍有弹性，瞬时可耐300℃以上的高温。硅橡胶的透气性好，氧气透过率在合成聚合物中是最高的。

Silicone rubber is a type of rubber where the main chain alternates between silicon and oxygen atoms, with silicon atoms typically bonded to two organic groups. Ordinary silicone rubber is mainly composed of silicon-oxygen chains with methyl and a small amount of vinyl groups.

Silicone rubber has excellent low-temperature performance, typically remaining functional at -55°C. Its heat resistance is also notable, with the ability to operate continuously at 180°C, withstand slightly higher temperatures of around 200°C for several weeks or longer while still retaining elasticity, and tolerate short-term exposure to temperatures above 300°C. Silicone rubber has high permeability, with the highest oxygen permeability among synthetic polymers.

物性介绍 Physical properties

颜色 Colour:			红色 Red
硬度 Hardness:	DINISO 7619 （3 sec)	ShoreA	85 +/-5
硬度 Hardness:	DINISO 7619 （3 sec)	ShoreD	34
密度 Density:	DIN EN ISO 1183-1	g/cm3	1.52±0.03
100% 定伸强度 100% Modulus:	DIN53504	N/mm2	≥5.5
拉伸强度 Tensile strength:	DIN53504	N/mm2	≥7
断裂伸长率 Elongation at break:	DIN53504	%	≥130
撕裂强度 Tear strength:	DIN ISO 34-1	N/mm	≥15
压缩永久变形 Compression set: 24h/70°C:	DIN ISO 815	%	≤15
压缩永久变形 Compression set:24h/175°C	DIN ISO 815	%	≤20
最低使用温度 Min.service temperature:	ISO11357-2	°C	-60
最高使用温度 Max.service temperature:	ISO11357-2	°C	210

橡胶制品耐介质一览表

耐介质 / 材料性		NBR 丁腈胶	HNBR 氢化丁腈胶	FKM	MVQ	EPDM	ACM	PU 聚氨酯
润滑油	内燃机油	◎	◎	△	△	×	◎	○
	齿轮油	◎	◎	△	△	×	◎	△
	机械油	◎	◎	◎	○	×	◎	◎
	锭子油	◎	◎	◎	△	×	○	◎
	冷冻机油（矿物油型）	○	○	◎	△	×	○	◎
	杯脂	◎	◎	◎	△	×	○	○
	锂基脂	◎	◎	◎	◎	×	◎	○
	硅基脂	◎	◎	◎	×	◎	◎	◎
液压油	汽轮机油	◎	◎	○	○	×	◎	◎
	油+水乳化液型	◎	◎	△	△	△	×	△
	水+乙二醇型	○	○	△	△	◎	×	△
	磷酸酯型	×	×	◎	○	◎	×	×
	硅油型	◎	◎	◎	×	◎	◎	○
	制动液	△	△	△	○	◎	×	△
	液力变矩器油	△	△	○	△	×	◎	△
燃料油	轻油、煤油	△	○	◎	×	×	×	×
	重油	△	△	◎	×	×	×	○
	汽油	△	△	◎	×	×	×	×
水	水、温水	○	○	△	○	◎	×	○
	水蒸气、热水	○	○	△	△	◎	×	×
	加入防冻液的水	○	○	△	△	◎	×	○
	含水切削液	○	○	△	△	△	×	△
化学药品	20%盐液	△	△	△	△	◎	△	△
	30%硫酸	○	○	○	○	◎	△	△
	10%硝酸	×	×	△	×	○	×	△
	30%苛性钠	◎	◎	×	×	◎	×	×
	苯	×	×	△	×	×	×	×
	三氯乙烯	×	×	△	△	×	×	×
	酒精	○	○	○	○	◎	×	△
	乙醇	◎	◎	◎	◎	◎	△	○
	丙酮	×	×	×	△	○	×	×
气体	液化石油气	○	○	◎	×	×	△	○
	煤气	○	○	◎	△	△	○	○
	臭氧	△	○	◎	◎	◎	◎	○
	氟利昂 R134a	×	△	×	×	◎	×	×
	氟利昂 22	△	△	△	×	△	△	×
其他	食品卫生法				◎	◎		◎
	真空 大气～10^{-4}mmHg	◎	◎	◎				
	真空 10^{-4}～10^{-9}mmHg			◎				

Rubber Chemical Resistance and Compatibility Guide

耐性 / 介质 \ 材料		NBR	HNBR	FKM	MVQ	EPDM	ACM	PU
Lubricating oil	Internal combustion engine oil	◎	◎	△	△	×	◎	○
	Gear oil	◎	◎	△	△	×	◎	△
	Machine oil	◎	◎	◎	○	×	◎	◎
	Spindle oil	◎	◎	◎	△	×	○	◎
	Refrigeration oil (mineral oil type)	○	○	◎	△	×	○	◎
	Cup grease	◎	◎	◎	△	×	○	○
	Lithium grease	◎	◎	◎	◎	×	◎	○
	Silicone grease	◎	◎	◎	×	◎	◎	◎
Chemicals Gas	Turbine oil	◎	◎	○	○	×	◎	◎
	Oil + water emulsion	◎	◎	△	△	△	×	△
	Water + glycol	○	○	△	△	◎	×	△
	Phosphate ester	×	×	◎	○	◎	×	×
	Silicone oil	◎	◎	◎	×	◎	◎	○
	Brake fluid	△	△	△	○	◎	×	△
	Torque converter oil	△	△	○	△	×	◎	△
Hydraulic oil	Light oil, kerosene	△	○	◎	×	×	×	×
	Heavy oil	△	△	◎	×	×	×	○
	Gasoline	△	△	◎	×	×	×	×
Water	Water, warm water	○	○	△	○	◎	×	○
	Water vapor, hot water	○	○	△	△	◎	×	×
	Water with antifreeze	○	○	△	△	◎	×	○
	Aqueous cutting fluid	○	○	△	△	△	×	△
Fuel oil	20% saline solution	△	△	△	△	◎	△	△
	30% sulfuric acid	○	○	○	○	◎	△	△
	10% nitric acid	×	×	△	×	○	×	△
	30% caustic soda	◎	◎	×	×	◎	×	×
	Benzene	×	×	△	×	×	×	×
	Trichloroethylene	×	×	△	△	×	×	×
	Alcohol	○	○	○	○	◎	×	△
	Ethanol	◎	◎	◎	◎	◎	△	○
	Acetone	×	×	×	△	○	×	×
	Liquefied petroleum gas	○	○	◎	×	×	△	○
	Coal gas	○	○	◎	△	△	○	○
	Ozone	△	○	◎	◎	◎	◎	○
	Freon R134a	×	△	×	×	◎	×	×
	Freon 22	△	△	△	×	△	△	×
Gas	Food Sanitation Law				◎	◎		◎
	Vacuum Atmosphere ~ 10-4mmHg	◎	◎	◎				
	Vacuum 10-4 ~ 10-9mmHg			◎				

聚四氟乙烯类 Polytetrafluoroethylene

聚四氟乙烯是在聚四氟乙烯中掺入不同的充填材料,可改善和提高其综合物理化学性能，从而扩大了它的使用范围。因此,聚四氟乙烯密封材料可适用石油基液压油、水-油乳化液、水-乙二醇基液压液、磷酸脂基液压液等工作介质的密封。

Polytetrafluoroethylene (PTFE) is enhanced by incorporating various fillers to improve and expand their overall physical and chemical properties, thereby broadening their application range. As a result, PTFE sealing materials can be used for sealing work media such as petroleum-based hydraulic oils, water-oil emulsions, water-glycol-based hydraulic fluids, and phosphate-ester-based hydraulic fluids.

苏州普力密封科技有限公司为满足密封产品的不同应用工况，开发并生产各种填充四氟产品。

材料	成分	颜色	使用温度范围
PLMFLON-1	PTFE		-200°C~260°C
PLMFLON-2	PTFE+15%玻纤+5%二硫化钼		-200°C~260°C
PLMFLON-3	PTFE+40%铜粉+3%二硫化钼		-200°C~260°C
PLMFLON-4	PTFE+20%碳粉		-200°C~260°C

更多填充四氟需求详询普力

PLMFLON-1

材料介绍
General Information

PLMFLON-1是基于聚四氟乙烯。由于其成分，在所有密封材料中具有最广泛的应用范围。具有突出的耐化学性，在高温下只易受熔融的碱金居和初级氟的影响。聚四氟乙烯有蠕变的倾向，可以吸收相对较低的压力负荷。PLMFLON-1.适用于与食品接触的应用，也用于保健和制药行业的许多应用。

PLMFLON-1 is based on polytetrafluoroethylene (PTFE). Due to its composition, it offers the widest range of applications among sealing materials. It has outstanding chemical resistance, being only affected by molten alkali metals and elemental fluorine at high temperatures. PTFE tends to creep and can handle relatively low-pressure loads. PLMFLON-1 is suitable for applications in contact with foodstuffs and is also used in various applications in the healthcare and pharmaceutical industries.

物性介绍 Physical properties

Property 物性	Unit 单位	Value 数值	Standard 标准
Standard colour 常规颜色		White 白色	
Durometer hardness 硬度	Shore D	57	ISO 868
Density 密度	g/cm3	2,16	DIN EN ISO 1183-1
Tensile strength 拉伸强度	MPa	27	ASTM D4894
Elongation at break 断裂伸长率	%	300	ASTM D4894
Coefficient of thermal expansion, 25 °C 热膨胀系数，25 °C	K–1	16x10–5	DIN ISO 7991
Coefficient of sliding 滑动系数	–	0,1	–
Coefficient of thermal conductivity 导热系数	W/mK	0,23	DIN 52612
Minimum service temperature 最低工作温度	°C	–200	–
Maximum service temperature 最高工作温度	°C	260	–

PLMFLON-2

材料介绍
General Information

PLMFLON-2是一种填充15%玻璃纤维和5%MOS2的PTFE，以便与PTFE-VIRGIN相比，提高其抗压强度、抗挤压性和耐磨性能。耐化学性保持与PLMFLON1相似。玻璃填充PTFE化合物对其配合表面具有研磨作用，特别是在旋转应用中。

PLMFLON-2 is a PTFE filled with 15% glass and 5% MoS2 to improve its compressive strength, extrusion resistance, and wear properties compared to PTFE-virgin. Chemical resistance remains similar to PLMFLON1. Glass-filled PTFE compounds have an abrasive effect on their mating surfaces, especially in rotating applications.

物性介绍 Physical properties

Property 物性	Unit 单位	Value 数值	Standard 标准
Standard colour 常规颜色		Gray 灰	
Durometer hardness 硬度	Shore D	62	ISO 868
Density 密度	g/cm3	2.27	DIN EN ISO 1183-1
Tensile strength 拉伸强度	MPa	20	ASTM D4894
Elongation at break 断裂伸长率	%	220	ASTM D4894
Coefficient of thermal expansion, 25 °C 热膨胀系数，25 °C	K–1	11x10–5	DIN ISO 7991
Coefficient of thermal conductivity 导热系数	W/mK	0,48	DIN 62612
Minimum service temperature 最低工作温度	°C	–200	–
Maximum service temperature 最高工作温度	°C	260	–

PLMFLON-3

材料介绍
General Information

PLMFLON-3是填充40%铜粉的PTFE，以提高其抗压强度，与PTFE-VIRGIN相比，它具有更好的导热性和优异的耐磨性。铜粉填充聚四氟乙烯具有较高的摩擦和较差的耐化学性能比其他填充聚四氟乙烯化合物。

PLMFLON-3 is PTFE filled with 40% bronze to increase its compressive strength, it has better thermal conductivity and excellent wear resistance compared to PTFE-virgin. Bronze-filled PTFE has higher friction and poorer chemical resistance than other filled PTFE compounds.

物性介绍 Physical properties

Property 物性	Unit 单位	Value 数值	Standard 标准
Standard colour 常规颜色		Brown 棕	
Durometer hardness 硬度	Shore D	65	ISO 868
Density 密度	g/cm3	3.12	DIN EN ISO 1183-1
Tensile strength 拉伸强度	MPa	23	ASTM D4894
Elongation at break 断裂伸长率	%	240	ASTM D4894
Coefficient of thermal expansion, 25 °C 热膨胀系数，25 °C	K–1	6x10–5	DIN ISO 7991
Minimum service temperature 最低工作温度	°C	–200	–
Maximum service temperature 最高工作温度	°C	260	–

PLMFLON-4

材料介绍
General Information

PLMFLON-4是填充20%碳的PTFE，这使其具有优异的抗压强度、良好的导热性和低渗透性。碳填充的聚四氟乙烯比玻璃填充的多孔材料磨损小，具有优异的磨损和摩擦性能，特别是与石墨结合使用。

PLMFLON-4 is polytetrafluoroethylene filled with 20% carbon, which gives it excellent compressive strength, good thermal conductivity and low permeability. Carbon-filled PTFE is less abrasive than glass-filled porous materials and has excellent wear and friction properties, especially when combined with graphite.

物性介绍 Physical properties

Property 物性	Unit 单位	Value 数值	Standard 标准
Standard colour 常规颜色		Black 黑	
Durometer hardness 硬度	Shore D	65	ISO 868
Density 密度	g/cm3	2,10	DIN EN ISO 1183-1
Tensile strength 拉伸强度	MPa	15	ASTM D4894
Elongation at break 断裂伸长率	%	150	ASTM D4894
Coefficient of thermal expansion, 25 °C 热膨胀系数，25 °C	K–1	9x10–5	DIN ISO 7991
Coefficient of thermal conductivity 导热系数	W/mK	0,60	DIN 52612
Minimum service temperature 最低工作温度	°C	–200	–
Maximum service temperature 最高工作温度	°C	260	–

注塑型聚醚醚酮 Injection Molding PEEK

材料介绍
General Information

PEEK（聚醚醚酮）塑胶原料是芳香族结晶型热塑性高分子材料。

PLMPEEK具有较高的拉伸性能和刚性，良好的抗冲击和抗疲劳性能以及优异的磨损性能。

此外，这种聚合物材料表现出良好的电性能，耐高温和耐辐射，以及出色的耐化学性，特别是抗酸、碱或耐水解。

PEEK (polyetheretherketone) plastic raw material is an aromatic crystalline thermoplastic polymer material, belonging to the group of partly crystalline thermoplastics.

PLMPEEK is showing high tensile properties and stiffness, good impact and fatigue resistance as well as excellent wear properties.

Furthermore this polymeric material is showing good electrical properties, high temperature and radiation resistance as well as outstanding chemical resistance, in specific against e.g. acids and alkalis or hydrolysis resistance.

物性数据 General information

属性 (Property)	单位 (Unit)	值 (Value)	标准 (Standard)
标准颜色 (Standard Color)	-	奶油色 Cream	-
硬度 (Hardness)	邵氏 D (Shore D)	87	ISO 868
密度 (Density)	g/cm³	1.3	DIN EN ISO 1183-1
屈服应力 (Yield Stress)	MPa	100	ISO 527
断裂伸长率 (Elongation at Break)	%	45	ISO 527
拉伸模量 (Tensile Modulus)	MPa	3,700	ISO 527
缺口冲击强度，夏比，23°C (Charpy Notch Impact Strength, 23°C)	kJ/m²	7	ISO 179/1eA
高温尺寸稳定性 HDT/A (High Temperature Dimensional Stability HDT/A)	°C	152	ISO R 75-f
吸水率 24 小时, 23°C (Water Absorption 24h, 23°C)	%	0.07	ISO 62-1
最低使用温度 (Lowest Operating Temperature)	°C	-100	-
最高使用温度 (Highest Operating Temperature)	°C	260	-

注塑型聚甲醛 Injection Molding POM

材料介绍
General Information

聚甲醛树脂动静摩擦因数较小，耐有机溶剂及化学腐蚀，具有良好的机械性能及抗蠕变性。可以通过不同的填充材料改进其性能，使用温度:-50~+100℃，最好低于80”℃，适用于制作往复运动密封圈用的挡圈和导向支承环等。

Polyoxymethylene resin has a small dynamic and static friction coefficient, is resistant to organic solvents and chemical corrosion, and has good mechanical properties and creep resistance. Its performance can be improved by adding various kind of fillers. The operating temperature is -50~+100℃, preferably below 80"℃. It is suitable for making retaining rings and guide support rings for reciprocating seals.

物性数据 General information

属性 (Property)	单位 (Unit)	值 (Value)	标准 (Standard)
标准颜色 (Standard Color)	-	黑色black	-
硬度 (Hardness)	邵氏 D (Shore D)	82	ISO 868
密度 (Density)	g/cm³	1.41	DIN EN ISO 1183-1
屈服应力 (Yield Stress)	MPa	65	ISO 527-1/2
屈服伸长率 (Yield Elongation)	%	8-10	ISO 527-1/2
断裂伸长率 (Elongation at Break)	%	25	ISO 527-1/2
拉伸模量 (Tensile Modulus)	MPa	2,900	ISO 527-1/2
冲击强度，夏比，+23°C (Charpy Impact Strength, +23°C)	kJ/m²	10	ISO 179-1
冲击强度，夏比，-30°C (Charpy Impact Strength, -30°C)	kJ/m²	8	ISO 179-1
吸水率, 23°C, 饱和 (Water Absorption, 23°C, Saturated)	%	0.65	ISO 62
滑动系数 (Coefficient of Friction)	-	0.25-0.32	-
最低使用温度 (Lowest Operating Temperature)	°C	-50	-
最高使用温度 (Highest Operating Temperature)	°C	100	-

扫一扫 关注公众号

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