



**朗盛**

**LANXESS**

Energizing Chemistry

乐斯展 Lustran<sup>®</sup> ABS

诺伏都 Novodur<sup>®</sup> ABS

乐斯展 Lustran<sup>®</sup> SAN

赛克斯 Triax<sup>®</sup> ABS/PA

Styrenic Resins  
Asia Pacific

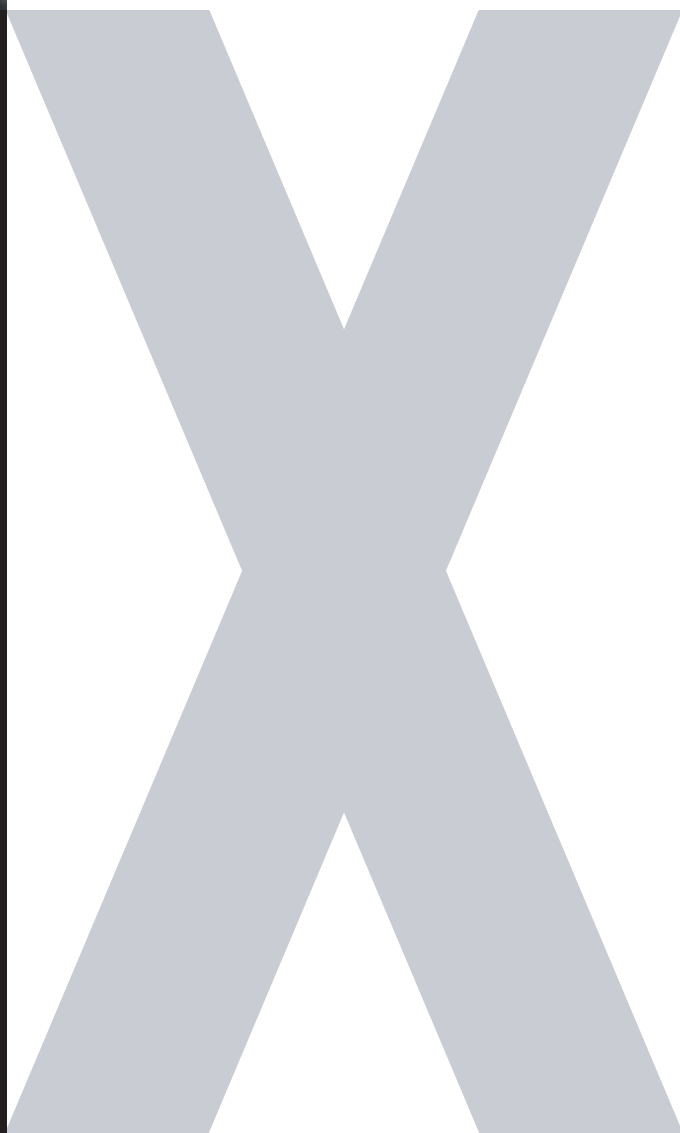
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**ATI** LTC02 e,c

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# Lustran<sup>®</sup> Novodur<sup>®</sup> Triax<sup>®</sup>

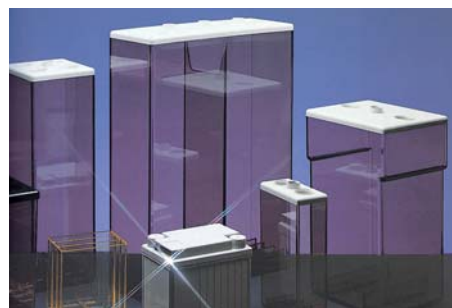
## 产品范围 / Product range

	注射品级 Injection Moulding Grades				挤出品级 Extrusion Grades	
	Lustran ABS	Novodur ABS	Lustran SAN	Triax ABS/PA	Lustran ABS	Triax ABS/PA
通用品级 General purpose	240 440 640		SAN C SAN 31 SAN 51	1120	530 532	1120S
高流动性 High Flow	250 450 650					
抗静电 Anti-static	M202AS	P2H-AT				
抗紫外线 UV-resistant				KU2-3050		
电镀 Plating	377					
喷涂 Paintable	970					
冰箱 Refrigeration	680 680 LNS503				595 CP	
耐高温及汽车 Heat Resistant & Automotive Application	H605, H701 H702, H801 H802, H950 5300					
玻纤增强 Glass Fiber Reinforced	150 G10 150 G22		SAN GF20 SAN GF30	1315GF		
矿物填充 Mineral Filled				KU2-3154		

2004年起，以下旧的型号会被新型号代替：

Several grades have been replaced by new grades since 2004 as shown in the following table:

旧型号 / Old Grades	新型号 / New Grades
Lustran QE1455 Novodur P2MT Novodur PMT	Lustran H701
Novodur P2T	Lustran H802
Novodur P3T	Lustran H950



朗盛 (泰国) 有限公司生产注册商标为 Lustran® ABS 和 Novodur® ABS 的 ABS 塑料和注册商标为 Lustran® SAN 的 SAN 塑料。

Lanxess (Thailand) Company Limited manufactures Lustran® ABS/Novodur® ABS and Lustran® SAN.

Lustran ABS /Novodur ABS 提供品种广泛的注射品级产品，如通用品级、高流动品级、高光泽品级、喷涂品级和电镀品级，同时也提供板材挤出品级。

Lustran ABS/ Novodur ABS has a wide range of injection moulding products consisting of general purpose, high flow, high gloss, paintable and plating grades as well as sheet extrusion products.

Lustran ABS /Novodur ABS 具有极高的光泽度、优良的流动性以及均匀的颜色，并能提供中等至较高冲击强度的各种品级。

Lustran ABS/ Novodur ABS has superior gloss, consistent colour base whiteness and excellent flow and offers a range of medium to high impact grades.

Lustran ABS/Novodur ABS 的主要应用领域包括玩具、汽车部件、电器产品、电话机、商业机器外壳、普通耐用消费品和冰箱。

Key applications for Lustran ABS/ Novodur ABS are toys, automotive parts, electrical appliances, telephone sets, business machine housings, general consumer durables and refrigerators.

Lustran SAN 产品包括通用注射品级和特殊注射品级。

Lustran SAN is an injection moulding product consisting of general purpose grades and specialty grades.

Lustran SAN 具有极佳的透明度、优良的流动性，并提供一系列颜色以满足不同工业要求。

Lustran SAN has clear transparency, excellent flow and offers a range of tints to meet industry requirements.

Lustran SAN 的主要应用领域包括化妆品包装、一次性打火机、冰箱透明果菜盒、音响设备显示面板以及普通家庭用品。

Key applications for Lustran SAN are cosmetic packaging, disposable lighter body, refrigerator crisper trays, audio display lens, and general household goods.

Lustran ABS/Novodur ABS 和 Lustran SAN 可以提供本色和染色料，并且所有产品都经过 UL 认证。

We offer both natural and pre-coloured products. Our Lustran ABS / Novodur ABS and Lustran SAN are UL approved.

## Lustran® ABS / Novodur® ABS

ABS 的多功能性来源于其三种组成单体丙烯腈、丁二烯和苯乙烯。

丙烯腈提供抗化学性和热稳定性；丁二烯提供韧性和冲击性能；苯乙烯提供刚性和加工性能。这些单体在现代化的生产装置中经聚合得到 ABS 产品。

Lustran ABS/Novodur ABS 提供在强度、韧性、高光泽、加工性能、着色性能、无毒性、高尺寸精度和稳定性诸性能方面的最佳平衡。Lustran ABS/Novodur ABS 的无定型结构使之具有良好的电气绝缘性能、抗多种化学介质的性能。

Lustran ABS/Novodur ABS 可以通过注射、挤出以及热成型等加工方法成型最终制品。另外，Lustran ABS /Novodur ABS 还可进行二次加工成型，例如电镀、喷涂以及其它大量的二次加工方法。

Lustran ABS/Novodur ABS 广泛应用于商业机器、通讯产品、电器产品、汽车部件、日常用品和工业领域。

The versatility of ABS is derived from its monomeric building blocks Acrylonitrile, Butadiene and Styrene.

Acrylonitrile primarily offers chemical resistance and heat stability; Butadiene delivers toughness and impact and the Styrene component provides ABS with rigidity and processability. These are polymerised in modern production facilities to provide the ABS products.

Lustran ABS/ Novodur ABS offers a balance of strength, toughness, high gloss, processability, colourability, non-toxicity, high dimensional accuracy and stability. It has good electrical insulation properties, resistance to many aggressive media which is largely due to the amorphous structure of the polymer.

Finished parts can be made from Lustran ABS/ Novodur ABS by injection moulding, extrusion and thermoforming techniques. In addition, Lustran ABS/ Novodur ABS lends itself to secondary processing such as plating, painting and a large number of other secondary processing forms.

Lustran ABS/ Novodur ABS is widely used in business machines, telecommunications, electrical appliances and automotive components.



剪草机 / Lawn mower (Lustran ABS)



医用仪器壳体 / Equipment housing (Lustran ABS)

## Lustran® ABS / Novodur® ABS - 注射品级 / Injection moulding grades

### 通用品级

通用级 Lustran ABS 提供机械性能、加工性能和表面质量之间的最佳平衡。可供选择的冲击强度范围足以满足家庭用品、消费品以及玩具等众多应用领域之需求。

### 高流动品级

Lustran ABS 的高流动品级具有极佳的流动性，尤其适合于薄壁制品、复杂形状制品以及大尺寸制品的注射成型。更短的成型周期确保了更高的生产率。

Novodur ABS 抗静电品级具备流动性和冲击强度方面的极佳的平衡性能，同时具有高光泽表面，尤其适合于 IT 和家电产品的应用。

### 电镀品级

Lustran ABS 377 将流动性、刚性和电镀附着性等方面独特地组合在一起。广泛用于电镀栅格、轮盖、电子产品、卫生洁具、玩具和其它产品。

### 喷涂品级

Lustran ABS 970 是专门为喷涂工艺开发的专用品级。该品级都具有优良的成型性能，同时可喷涂标准汽车涂料获得符合“汽车标准”的喷涂表面。

广泛用于汽车和摩托车中需要表面喷涂的所有零部件。

### General Purpose Grade

Lustran ABS general purpose grades provide an optimum balance of mechanical properties, processability and surface quality. The range of impact properties available is particularly attractive for a wide range of application in household appliances, consumer goods and toys.

### High Flow Grade

Lustran ABS high flow grade has superb flow properties which is particularly suitable for thin or intricate and large size moulded products. Its shorter cycle time guarantees high productivity.

Novodur ABS anti-static grade provides an excellent balance between flow properties and impact strength with high gloss suitable for IT application and household appliances.

### Plating Grade

Lustran ABS 377 has a unique combination of flow, rigidity and plating adhesion. It is widely used in plating grills, wheel covers, electronic parts, sanitary wares, name plates, toys and other plated products.

### Paintable Grade

Lustran ABS 970 is a specially formulated paintable ABS product. This grade is designed to give both excellent moulding performance as well as an "automotive standard" painted surface using standard automotive paint systems.

It is widely used in all parts of automobiles and motorcycles which require painting.



电话机 / Telephone (Novodur ABS)



吸尘器 / Vacuum cleaner (Novodur ABS)



## Lustran® ABS - 冰箱用品级 / Refrigeration Grades

### 注射品级 (抗 HCFC 141b)

Lustran ABS 680 是为抗 HCFC 141b 而开发的专用品级，适用于直接接触 HCFC 141b 发泡剂的冰箱冷冻室和冷藏室的门堵及其它部件。

### 挤出品级 (抗 CFC 11/CP/HFC 134a)

Lustran ABS 595CP 以其出众的性能而闻名。它们提供冰箱内胆改进的热循环性能、优良的热成型性能和减少壁厚大可能性。这些品级具有能抗 CFC11、环戊烷和 HFC 134a 等发泡剂的化学性能。

### Injection Moulding Grade (Resistant to HCFC141b)

Lustran ABS 680 is specially formulated to withstand exposure to HCFC 141b. It is used for injection moulding of refrigerator and freezer door end caps and parts in direct contact with HCFC 141b blowing agent.

### Extrusion Grade (Resistant to CFC11/CP/HFC134a)

Lustran ABS 595CP has been recognised for their superior performance. It offers improved thermal cycling performance, excellent thermoforming properties and down gauging potential for refrigerator / deep freezer innerliners. These grades are chemically resistant to blowing agents such as CFC 11, Cyclopentane and HFC 134a.



冰箱 / Refrigerator (Lustran ABS, SAN)



食品包装盖 / Food packaging film (Lustran ABS)

## Lustran SAN

苯乙烯-丙烯腈共聚物是具有良好耐热性、优良抗化学性和光泽表面的透明塑料。

Lustran SAN 具有极佳的加工性能，对硬度、刚度、尺寸稳定性和抗化学性均有要求的注射制品而言，Lustran SAN 制成品具有良好的性能价格比。

除此之外，Lustran SAN 无论是本色和染色料都具有良好的透明度、抗热变形和抗刮性能。

Lustran SAN 广泛用于汽车、医疗设备、电池、餐具、化妆品包装以及一次性打火机等领域。

### 通用品级

Lustran SAN C 和 Lustran SAN 31 提供透明性、强度、刚度和流动性等性能的极佳组合。Lustran SAN 基本树脂符合有关食品接触的 FDA 标准。此外，Lustran SAN 基料具有极佳的着色性能。

通用品级广泛用于化妆品包装、冰箱内部件、托盘、食品容器、餐具、搅拌壶、牙刷柄、气密容器等领域。

### 特殊品级

Lustran SAN 51 主要用于对韧性和抗化学性有很高要求的领域。

Lustran SAN 51 广泛适用于一次性打火机、风扇叶片、电器部件等制品。



打火机 / Lighter (Lustran SAN)

Styrene-Acrylonitrile co-polymers are inherently transparent plastics with high heat resistance, excellent chemical resistance and gloss.

Lustran SAN has easy processability and is a cost effective choice for moulded parts that require good hardness, rigidity, dimensional stability, and chemical resistance.

Besides it has good optical clarity in both natural and tinted colours, resistance to heat deformation and scratches.

Lustran SAN is widely used in automotive, appliances, medical, batteries, kitchenware, cosmetic packaging and disposable lighters.

### General Purpose Grades

Lustran SAN C and Lustran SAN 31 offer exceptional combination of clarity, strength, rigidity and flowability. Lustran SAN base resins meet the current FDA criteria for food contact applications. Besides, they are excellent as base materials for colour compounding.

The general purpose grades are widely used in cosmetic packaging, interior refrigerator components, trays, food containers, tableware, dinnerware, blender jars, toothbrush handles, air-tight containers, etc.

### Special Grade

Lustran SAN 51 is for applications that need extra toughness and superior chemical resistance.

It is widely used for disposable lighters, fan blades, electrical components, etc.



餐具 / Party tableware (Lustran SAN)

## 质量方针 / Quality Policy

质量影响公司的方方面面。这就意味着我们通过提供内在至外在的产品和服务来满足客户的需求。因此，让用户满意是我们对质量定义的关键要素。

我们在提高产品质量和服务质量时，通过制定具体目标来监测所取得的进步。采用这种方法，我们能够实现以下三项主要目标：

- 提高生产过程和工艺的效率
- 尽可能减少修正操作
- 让内外客户满意

实现这些战略目标将是，在全球市场上提高我公司在产品和服务方面的质量及竞争力的先决条件。

Quality affects all segments of the company. It means providing our customers, both internal and external, with products and services to meet their needs. Customer satisfaction is therefore a key element in our definition of quality.

In improving the quality of our products and services, specific objectives are set so that improvement achieved can always be measured. In this way, we are able to meet three of our key goals:

- Increasing the efficiency of our production processes and procedures
- Minimizing the need for corrective action
- Satisfying internal and external customers

Meeting these strategic goals is a key prerequisite in improving the quality and competitive position of our products and services in world markets.



计算机主机外壳 / Computer housing (Novodur ABS)



打印机外壳 / Printer housing (Novodur ABS)



## 配色实验室 / Colouring Laboratory

### 质量控制实验室

所有进厂的单体和添加剂都依据有关规定进行严格检测，同时也检测聚合后的中间体，最后再根据产品规定对最终产品进行测试。

结合 SPC (统计过程控制) 的质量评价系统确保始终为客户提供高品质的产品。

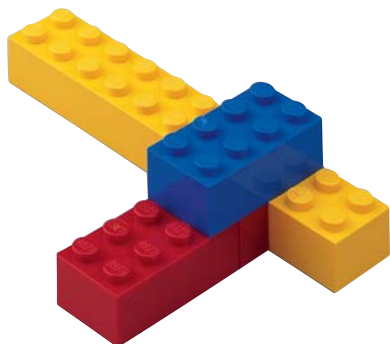
### 颜色 – 最直观的质量标志

可直接提供染色料，由此可以为客户大大节省因特殊要求需进行染色的成本。

同时也可根据客户的要求进行配色。

生产过程中的着色在经验丰富的配色专家监控下完成，通过光谱仪检测和直观评价来判断是否达到正确的色调。最后将所需表面光泽度的色板交给客户确认。

不同生产批号的颜色都通过与客户认可的色板进行严格的比较和检测，因此完全可以满足客户最重要的要求之一原料在成型过程中的颜色一致性。



LEGO 玩具 / Toy (Novodur ABS)

### Quality Control Laboratory

At Lanxess (Thailand) Company (LTC), incoming monomers and additives are tested for conformity to agreed specifications. After polymerisation, resulting intermediates are also monitored. Finally, the compounded finished products are tested against their specifications.

This cascade of evaluations, combined with the use of SPC (Statistical Process Control) allows LTC to present to their customers, products of constantly high quality.

### Colour - The Most “Visible” Mark of Quality

LTC has capability to produce in-house pre-coloured materials. This saves customer expenses of pigmenting the resin for his own particular application.

LTC will colour match a variety of colour shades based on customer's design specifications.

Colouring for production runs is carried out round the clock by experienced colourists, who judge the “correct” shade using both spectrophotometer and visual assessment. Colour chips, in the required surface finish, will be submitted to the customer for approval.

Colour for each production batch is compared and measured against customer's approved colour chip, thereby meeting the customer's most important requirements - colour consistency within production runs.



智能卡 / Credit card (Lustran ABS)

## 物流、包装 / Logistics / Packaging

### 物流

物流被定义为,从开始处理朗盛办事处或代理商拿到的定单,一直到所需产品的交货。

所有定单的相关信息都通过中央数据处理系统进行传递,中央系统始终保持对数量和交货日期的监测。对货物的清楚确认是顺利操作不可缺少的条件。

### 包装

LTC 采用尽量与测试样条代码确认和包装的体系。Lustran /Novodur ABS 和 Lustran SAN 产品提供以下包装和运输规格:

### Logistics

Logistical concept begins with the handling of the order when it is received by the Lanxess office or agency and ends with the delivery of the required product.

Relevant information flow for all orders is channelled through a central data handling system which also keeps a check on quantities and delivery dates. Clear identification of the goods is essential for smooth handling.

### Packaging

LTC uses a tried and tested bar code identification and packaging system. Both Lustran ABS /Novodur ABS and Lustran SAN resins are packed and shipped in the following configurations:

类型 / type	20 尺集装箱 / 20 FT FCL	40 尺集装箱 / 40 FT FCL
25-kg 小包 (松散) / Bag (loose)	18 吨 / MT	22 吨 / MT
25-kg 小包 (1.5 吨拖板) 25-kg palletised 1.5 MT/pallet	12 吨 /MT	21 吨 / MT
650-kg 大包 / Jumbo Bag (SAN)	13 吨 /MT	20.8 吨 / MT



摩托车部件 / Motorcycle (Lustran ABS)



车外后视镜外壳 /Exterior mirror housing (Novodur ABS)

## 技术服务 / Technical Service

### 技术支持

我们为客户提供全方位的服务,协助客户生产出高质量的塑料制品。

我们也通过朗盛公司的技术服务网络来提供加工方面的帮助。

通过提供以下服务,我们可以帮助客户优化其产品的质量和性能:

- 1) 现场加工指导
- 2) 设备和生产率的审计
- 3) 开机和故障排除
- 4) 制品的计算机辅助设计和工程 (CAD 和 CAE)

### Technical Support

We offer our valued customers a comprehensive service package designed to back up their production of high-quality plastic mouldings.

We can provide processing assistance regionwide through a network of regional Field Technical Service engineers.

We can help customers optimize the quality and performance of their products by offering the following types of assistance:

- a) on-site processing recommendations
- b) equipment and productivity audits
- c) start-up and troubleshooting support
- d) computer-aided part design and engineering



车门内衬 / Door lining (Novodur ABS)



低气味副仪表盘 / Console in low-emission Lustran ABS

## Lustran® ABS / Novodur ABS - 注射品级 / Injection moulding grades

品级 Grade	IZOD 缺口冲击强度 IZOD notched impact strength		维卡软化温度 Vicat softening temperature		熔融指数 Melt flow index		拉伸模量 Tensile Modulus		特性	Characterisation										
	10	20	30	40	90	100	110	120			10	20	30	40	50	1000	1500	2000	2500	3000
<b>通用品级 / General purpose</b>																				
240	16				100					20								2550	标准冲击强度, 高光泽	Standard impact strength, high gloss
440	19				99					20								2500	中等冲击强度, 高光泽	Medium impact strength, high gloss
640	24				99					16								2250	高冲击强度, 高光泽	High impact strength, high gloss
<b>高流动性品级 / High flow</b>																				
250	14				99							38						2500	标准冲击强度, 高流动性, 高光泽	Standard impact strength, high flow, high gloss
450	17				99							27						2500	中等冲击强度, 高流动性, 高光泽	Medium impact strength, high flow, high gloss
650	22				98							22						2250	高冲击强度, 高流动性, 高光泽	High impact strength, high flow, high gloss
<b>抗静电级 / Anti-Static</b>																				
M20ZAS	15				100*													2300	中等冲击强度, 高流动性, 抗静电	Medium impact strength, good flow, high gloss, anti-static
Novodur P2H-AT	16				98*													2500	中等冲击强度, 高流动性, 抗静电	Medium impact strength, good flow, high gloss, anti-static
<b>电镀级 / Plating</b>																				
377	17				98													2500	中等冲击强度, 良好电镀结合性, 高刚度	Medium impact, good plating adhesion, high rigidity
<b>喷涂级 / Paintable</b>																				
970	25				98													2250	高冲击强度, 良好的喷涂性能	High impact strength, good paintability

## Lustran® ABS - 注射品级 / Injection moulding grades

品级 Grade	IZOD 缺口冲击强度 notched impact strength		维卡软化温度 Vicat softening temperature		熔融指数 Melt flow index		拉伸模量 Tensile Modulus		特性	Characterisation
	23°C ISO 180/1A/1982 KJ/m <sup>2</sup>	10 20 30 40	VST/B 120 ISO 306/1987 °C	90 100 110 120	MFI 220°C ; 10Kg ISO 1133/1991 g/(10 min)	10 20 30 40 50	ISO 527 1mm/min MPa	1000 1500 2000 2500 3000		
<b>冰箱级, 抗 HCF141b 发泡剂 / Refrigeration / Resistant to HCFC 141b</b>										
680	23		98		6			2500	高冲击强度, 抗 HCFC 141b 发泡剂	High impact, HCFC 141b resistance
680 LNS503	23		102		10			2600	高冲击强度, 抗 HCFC 141 b 发泡剂, 易流动	High impact HCFC 141b resistance, easy flow
<b>高耐热级及汽车应用 / Heat Resistant &amp; Automotive applications</b>										
H605	17		101*			24		2400	低气味性, 易流动	Low emission, easy-flowing
H701	24		104*		9			2150	中等耐热性, 高冲击强度	Medium heat resistance, high impact strength
H702	17		104*		16			2500	中等耐热性, 改进流动性	Medium heat resistance, increased flow
H801	30		105*		9			2400	高耐热性, 聚碳酸酯改性, 低气味, 改进流动性	High heat resistance, PC-modified, low emission, increased flow
H802	15		109*		8			2700	高耐热性, 改进流动性	High heat resistance, increased flow
H950	17		113*		4			2600	非常高的耐热性	Very high heat resistance
5300	32		106*		5			2350	高耐热性, 聚碳酸酯改性, 低气味	High heat, PC-modified, low emission
<b>玻纤增强 / Glass Fiber Reinforced</b>										
150 G10	16		105		19			4400	10% 玻纤增强	10% glass fiber reinforced
150 G22	16		106		8			6200	20% 玻纤增强	20% glass fiber reinforced

\* VST/B50 ISO 306/1987



## Lustran® ABS - 挤出品级 / Extrusion grades

品级 Grade	IZOD 缺口冲击强度		维卡软化温度		熔融指数		拉伸模量		特性	Characterisation
	IZOD notched impact strength 23°C ISO 180/1A/1982 KJ/m <sup>2</sup>	IZOD notched impact strength 30 40	Vicat softening temperature VST/B 120 ISO 306/1987 °C	90 100 110 120	Melt flow index ISO 1133/1991 g/(10 min)	10 20 30 40 50	Tensile Modulus ISO 527 1mm/min MPa	1000 1500 2000 2500 3000		
<b>通用品级 / General purpose</b>										
530		30		98		3.5		2200	高冲击强度, 高模量	High impact, high modulus
<b>通用品级, 高冲击强度 / General purpose, super high impact</b>										
532		35		95		2.5		1900	高冲击强度, 良好的加工性能	High impact, good processability
<b>冰箱级, 抗环戊烷发泡剂 / Refrigerator, resistant to cyclopentane</b>										
595CP		25		102		3		2550	高冲击强度, 抗环戊烷性能	High impact, resistant to cyclopentane

## Lustran® SAN - 注射品级 / Injection moulding grades

品级 Grade	IZOD 缺口冲击强度 IZOD notched impact strength		维卡软化温度 Vicat softening temperature		熔融指数 Melt flow index		拉伸模量 Tensile Modulus		特性	Characterisation
	23°C ISO 180/1A/1982 KJ/m <sup>2</sup>	10 20 30 40	VST/B 120 ISO 306/1987 °C	90 100 110 120	MFI 220°C; 10kg ISO 1133/1991 g/(10 min)	10 20 30 40 50	ISO 527 1mm/min MPa	1000 1500 2000 2500 3000		
<b>通用品级 / General purpose</b>										
SAN C	■ 2		■ 104		■ 23		■ 3700		中等冲击强度, 高流动性	Medium impact, high flow
SAN 31	■ 2		■ 104		■ 20		■ 3700		中等冲击强度, 高流动性	Medium impact, high flow
<b>特殊品级 / Special Grade</b>										
SAN 51	■ 2		■ 106		■ 15		■ 3800		具有优良抗化学性和韧性的高性能品级	High performance grade with excellent chemical resistance and toughness
<b>玻纤增强版 / Glass Fiber Reinforced</b>										
SAN GF20	■ 17*		■ 108		■ 6.5		■ 8000		20%玻纤增强	20% glass fiber filled
SAN GF30	■ 17*		■ 109		■ 5		■ 11000		30%玻纤增强	30% glass fiber filled

\* 无缺口冲击强度 / Unnotched impact strength

## 参考数据 / Reference data

### Lustran® ABS / Novodur® ABS - 注射品级 / Injection moulding grades

性能 Properties	测试条件 Test conditions	单位 Units	标准 Standards	通用品级 General Purpose			高流动性 High Flow			抗静电 Anti-static	
				240	440	640	250	450	650	M202AS	
<b>流变性能 / Rheological Properties</b>											
熔断指数 Melt flow index	220°C;10 kg	g/(10 min)	ISO 1133	20	20	16	38	27	22	31	
成型收缩率 Moulding shrinkage		%	ISO 294-4	0.4~0.6	0.4~0.6	0.4~0.6	0.4~0.6	0.4~0.6	0.4~0.6	0.4~0.7	
<b>机械性能 / Mechanical Properties</b>											
屈服应力 Yield stress	50 mm/min	MPa	ISO 527	49	48	43	49	48	44	44	
拉伸强度 Tensile stress @ break	50 mm/min	MPa	ISO 527	35	34	33	35	34	33	33	
断裂延伸率 Tensile strain @ break	50 mm/min	%	ISO 527	20	20	20	20	20	20	> 15	
拉伸模量 Tensile modulus	1 mm/min	MPa	ISO 527	2550	2500	2250	2500	2500	2250	2300	
弯曲强度 Flexural strength	2 mm/min 80 x 10 x 4	MPa	ISO 178	75	71	67	75	71	68	70	
弯曲模量 Flexural modulus	2 mm/min 80 x 10 x 4	MPa	ISO 178	2500	2400	2200	2500	2400	2200	2300	
IZOD 缺口冲击强度 IZOD notched impact strength	23 °C -20 °C -30 °C	kJ/m <sup>2</sup>	ISO 180/1A	16 12 7	19 14 8	24 16 10	14 11 6	17 13 7	22 15 9	15 - 8	
洛氏硬度 Rockwell hardness	t = 6.4 mm	R Scale	ISO 2039-2	115	112	110	116	113	110	100 <sup>1)</sup>	
<b>热性能 / Thermal properties</b>											
热变形温度: (退火处理*) 方法 Af Heat distortion temperature; (annealed*) method Af	1.80 MPa	°C	ISO 75	93	92	91	92	92	91	94	
热变形温度: (退火处理*) 方法 Bf Heat distortion temperature; (annealed*) method Bf	0.45 MPa	°C	ISO 75	97	96	95	96	96	94	98	
维卡软化温度 Vicat softening temperature	50 N;120 °C/h	°C	ISO 306	100	99	99	99	99	98	100 <sup>2)</sup>	
<b>其它性能 / Other properties</b>											
密度 Density		g/cm <sup>3</sup>	ISO 1183	1.05	1.05	1.04	1.05	1.05	1.04	1.05	
光泽度 Gloss	60°			88	90	89	90	90	87	93	
可燃性试验 UL94 Flammability UL94	厚度 1.6 mm thickness 1.6mm	类别 Class	UL94	HB	HB	HB	HB	HB	HB	HB	

\* 退火处理 / Annealing: 80°C, 4h

<sup>1)</sup> 球压痕硬度 / Ball indentation hardness ISO 2039-1

<sup>2)</sup> 测试条件 / Test conditions: 50N; 50°C/h

这些典型性能数据只是作为通用信息。

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# Lustran® Novodur®

抗静电 Anti-static	电镀 Plating	喷涂 Paintable	冰箱 Refrigeration		耐热和汽车应用 High Heat and Automotive Applications								玻纤增强 Glass Fiber Reinforced	
			Novodur P2H-AT	377	970	680	680 LNS503	H605	H701	H702	H801	H802	H950	5300
	36	28	22	6	10	24	9	16	9	8	4	5	19	8
	0.4~0.6	0.4~0.6	0.4~0.6	0.4~0.6	0.4~0.6	0.4~0.6	0.5~0.8	0.4~0.7	0.5~0.7	0.4~0.7	0.5~0.7	0.5~0.8	0.2~0.35	0.2~0.3
	42	48	41	46	49	47	41	46	49	51	50	49	-	-
	32	34	31	34	37	-	-	-	-	-	-	-	74	88
	25	20	20	20	25	> 15	> 15	> 15	> 15	> 15	> 15	> 15	5	5
	2500	2500	2250	2500	2600	2400	2150	2500	2400	2700	2600	2350	4400	6200
	68	71	67	70	72	72	65	73	77	80	80	77	100	120
	2400	2400	2200	2400	2500	2300	2150	2450	2300	2700	2600	2300	4200	5500
	16	17	25	23	23	17	24	17	30	15	17	32	16	16
	12	13	17	16	16	-	-	-	-	-	-	-	-	-
	-	7	11	10	10	7	12	8	12	8	8	12	-	-
	110 <sup>1)</sup>	112	108	114	114	105 <sup>1)</sup>	95 <sup>1)</sup>	105 <sup>1)</sup>	105 <sup>1)</sup>	115 <sup>1)</sup>	110 <sup>1)</sup>	100 <sup>1)</sup>	-	-
	93	91	90	91	92	98	99	99	99	100	105	99	114	115
	97	95	94	95	96	102	105	104	106	106	112	106	110	111
	98 <sup>2)</sup>	98	98	98	102	101 <sup>2)</sup>	104 <sup>2)</sup>	104 <sup>2)</sup>	105 <sup>2)</sup>	109 <sup>2)</sup>	113 <sup>2)</sup>	106 <sup>2)</sup>	105	106
	1.05	1.05	1.04	1.05	1.05	1.05	1.04	1.04	1.07	1.05	1.05	1.07	1.13	1.19
	93	90	89	85	85	-	-	-	-	-	-	-	-	-
	HB	HB	HB	HB	HB	HB	HB	HB	HB	HB	HB	HB	HB	HB

## Lustran® ABS - 挤出品级 / Extrusion grades

性能 Properties	测试条件 Test conditions	单位 Units	标准 Standards	通用品级 General Purpose	通用, 超高抗冲 General Purpose Super High Impact	冰箱 / 抗 CP Resistant to Cyclopentane
				530	532	595CP
<b>流变性能 / Rheological Properties</b>						
熔断指数 Melt flow index	220°C; 10 kg	g/(10 min)	ISO 1133	3.5	2.5	3.0
<b>机械性能 / Mechanical Properties</b>						
屈服应力 Yield stress	50 mm/min	MPa	ISO 527	41	38	46
拉伸强度 Tensile stress @ break	50 mm/min	MPa	ISO 527	33	31	38
断裂延伸率 Tensile strain @ break	50 mm/min	%	ISO 527	> 25	> 25	>25
拉伸模量 Tensile modulus	1 mm/min	MPa	ISO 527	2200	1900	2550
弯曲强度 Flexural strength	2 mm/min 80 x 10 x 4	MPa	ISO 178	66	61	70
弯曲模量 Flexural modulus	2 mm/min 80 x 10 x 4	MPa	ISO 178	2100	1900	2400
IZOD 缺口冲击强度 IZOD notched impact strength	23 °C	kJ/m <sup>2</sup>	ISO 180/1A	30	35	25
	-20 °C			20	22	15
	-30 °C			13	15	11
洛氏硬度 Rockwell hardness	t = 6.4 mm	R Scale	ISO 2039-2	107	95	112
<b>热性能 / Thermal properties</b>						
热变形温度: (未处理) 方法 Af Heat distortion temperature; (unannealed) method Af	1.80 MPa	°C	ISO 75	91	90	96
热变形温度: (未处理) 方法 Bf Heat distortion temperature; (unannealed) method Bf	0.45 MPa	°C	ISO 75	95	93	100
维卡软化温度 Vicat softening temperature	50 N; 120 °C/h	°C	ISO 306	98	95	102
<b>其它性能 / Other properties</b>						
密度 Density		g/cm <sup>3</sup>	ISO 1183	1.04	1.04	1.05
光泽度 Gloss	60°			90	90	90
可燃性试验 UL94 Flammability UL94	厚度 1.6 mm thickness 1.6 mm	类别 Class	UL94	HB	HB	HB

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## Lustran<sup>®</sup> SAN - 注射品级 / Injection moulding grades

性能 Properties	测试条件 Test conditions	单位 Units	标准 Standards	通用品级 General Purpose		特殊品级 Special Grade	玻纤增强 Glass Fiber Reinforced	
				SAN C	SAN 31	SAN 51	SAN GF20	SAN GF30
<b>流变性能 / Rheological Properties</b>								
熔断指数 Melt flow index	220 °C; 10 kg	g/(10 min)	ISO 1133	23	20	15	6.5	5
成型收缩率 Moulding shrinkage		%	ISO 294-4	0.3 ~ 0.4	0.3 ~ 0.4	0.3 ~ 0.4	0.25 ~ 0.35	0.2 ~ 0.35
<b>机械性能 / Mechanical Properties</b>								
屈服应力 Yield stress	50 mm/min	MPa	ISO 527	68	68	76	110	120
断裂延伸率 Tensile stress @ break	50 mm/min	%	ISO 527	3.2	3.2	3.8	1.7	1.2
拉伸模量 Tensile modulus	1 mm/min	MPa	ISO 527	3700	3700	3800	8000	11000
弯曲强度 Flexural strength	2 mm/min 80 x 10 x 4	MPa	ISO 178	111	111	125	162	180
弯曲模量 Flexural modulus	2 mm/min 80 x 10 x 4	MPa	ISO 178	3800	3800	3900	7500	10500
IZOD 缺口冲击强度 IZOD notched impact strength	23 °C	kJ/m <sup>2</sup>	ISO 180/1A	2	2	2	17*	17*
洛氏硬度 Rockwell hardness	t = 6.4 mm	R Scale	ISO 2039-2	126	126	126	-	-
<b>热性能 / Thermal properties</b>								
热变形温度: (未处理) 方法 Af Heat distortion temperature; (unannealed) method Af	1.80 MPa	°C	ISO 75	101	101	102	107	107
热变形温度: (未处理) 方法 Bf Heat distortion temperature; (unannealed) method Bf	0.45 MPa	°C	ISO 75	103	103	104	110	110
维卡软化温度 Vicat softening temperature	50 N; 120 °C/h	°C	ISO 306	104	104	106	108	109
<b>其它性能 / Other properties</b>								
密度 Density		g/cm <sup>3</sup>	ISO 1183	1.08	1.07	1.08	1.22	1.31
可燃性试验 UL94 Flammability UL94	厚度 1.6 mm thickness 1.6 mm	类别 Class	UL94	HB	HB	HB	HB	HB
透光率 Light transmittance		%	ASTM D1003	87 ~ 88	87 ~ 88	87 ~ 88		

\* 无缺口冲击强度 / Unnotched impact strength

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## 产品描述

Triax 是朗盛公司尼龙和 ABS 热塑性聚合物合金的商标名。

Triax 具有许多比 ABS 更优越的性能特点: 改善 ABS 的抗化学性和耐应力开裂, 更强的动态载荷能力和更佳的面光滑及耐磨性。另外, Triax 与尼龙相比较, 改进了尼龙的加工性能, 更低的产品收缩率以及减少产品的翘曲和更低的吸水率, 并且在产品成型脱模时具有更高的冲击强度和断裂伸长率。

## 性能特点

- 极佳的缺口冲击强度
- 良好的低温韧性
- 以 PA 6 为基料的合金最高可耐 180°C (维卡温度)
- 以 PA 66 为基料的合金最高可耐 250°C (维卡温度)
- 更好的抗化学性和耐应力开裂
- 更佳的面光滑及耐磨性
- 更高的抗疲劳强度
- 更易加工成型, 产品可薄壁化
- 高的接合强度
- 可制成晶粒状无光表面
- 可喷涂漆

值得一提的是 Triax 与其它聚合物合金相比, 具有更好的触觉感 (软感觉), 阻尼声音, 抗静电和低密度性能

## 应用

- 汽车行业
- 非喷漆的内装饰件, 例如: 音响和导航系统的外壳, 天窗的滑动部件, 通风口和格栅, 齿轮盖, 操纵杆和座椅饰件
- 喷漆的外装饰件, 轮毂罩, 前格栅, 挡泥板
- 电子电器行业
- 蒸汽清洁器, 电动剃须刀, 电动工具等外壳; 电缆插头, 开关外壳
- 运动和休闲器材
- 滑雪车部件, 运动和溜冰的各种配件, 除草机和剪草机的部件



草坪修边机的收线器外壳

Line spool housing for a lawn strimmer (Triax ABS/PA)

## Product description

Triax is the trade name of Lanxess for our thermoplastic polymer blends of ABS and polyamide.

The balanced property profile of Triax offers advantages over ABS through improved chemical and stress cracking resistance, higher dynamic load-bearing capacity and more favorable surface-slip and abrasion behavior. Compared with PA, Triax has improved processability, a lower shrinkage and tendency to warp, lower water absorption, and a high impact strength and tensile strain at break in the freshly molded state.

## Properties

- excellent impact and notched impact strength
- good low-temperature toughness
- heat resistance up to 180°C (Vicat A) PA 6 based
- heat resistance up to 250°C (Vicat A) PA 66 based
- good resistance to chemicals and stress cracking
- good surface-slip and abrasion behavior
- high fatigue resistance
- easy processing, thin-wall technology possible
- high knit-line strength
- matt effect with grained surfaces
- good paintability

Mention must also be made of its pleasant haptics (soft touch), acoustic damping, anti-static behavior and low density compared with other polymer blends

## Applications

- Automotive sector:
  - non-painted interior components, such as: housings for radio and navigation system, sliding roof consoles, air nozzles and defroster grilles, gear coverings, steering column and seat trim.
  - painted external parts: hubcaps, grill, fender
- Electrical/electronics sector:
  - housings for steam cleaners, electric shavers, power tools, plugs for high-voltage cables, switch covers
- Sport, leisure
  - parts for snowmobiles, sports and skiing accessories, lawn mowers.



气体探测器外壳 / Gas detector housing (Triax ABS/PA)

## Triax® ABS/PA - 注射和挤出品级 / Injection moulding and Extrusion grades

品级 Grade	IZOD 缺口冲击强度 IZOD notched impact strength		维卡软化温度 Vicat softening temperature		熔融指数 Melt volume - flow rate		拉伸模量 Tensile Modulus		特性	Characterisation					
	23°C ISO 180/1A/1982 KJ/m <sup>2</sup>	80	120 VST/A 120 ISO 306/1987 °C	140	160	180	2	4			6	8	10	1000	2000
<b>通用品级 / General purpose</b>															
1120	70		185			6				标准注射品级，良好的流动性，出色的冲击强度和低温冲击韧性，消光表面效果	Standard injection molding grade, good flowability, excellent impact strength, low-temperature toughness, matt surface				
<b>抗紫外线级 / UV-resistant</b>															
KU2-3050	70		185			6				改进的耐光性，适合于汽车内饰应用 (1120+ 紫外线稳定剂)	Increased stability to light exposure for interior automotive applications (1120+UV stabilizer)				
<b>玻璃纤维增强级 / Glass reinforced</b>															
1315GF	10		195			2.5				15% 玻璃纤维增强，高刚度和耐热性	15% glass fiber reinforced, maximum stiffness and heat resistance for Triax				
<b>矿物填充级 / Mineral filled</b>															
KU2-3154	7		130			8.5				8% 矿物填充，改进的流动性和良好的表面质量，低翘曲，低吸水率	8% mineral filled, improved flowability and surface finish, lower warpage, low water absorption				
<b>挤出品级 / Extrusion</b>															
1120S	70		185			2.8				高的熔体稳定性，良好的低温冲击韧性，良好的热成型性能，HPF (高压成型)	High melt stability, low-temperature toughness, good formability - thermoforming, HPF (High Pressure Forming)				

Triax® ABS/PA - 注射和挤出品级 / Injection moulding and Extrusion grades

性能 Property	测试条件 Test Condition	单位 Unit	标准 Standard	
<b>Rheological properties 流变性能</b>				
C Melt volume-flow rate	熔融指数 (体积)	260 °C; 5 kg	cm <sup>3</sup> /(10 min)	ISO 1133
Moulding shrinkage, parallel	成型收缩率, 流动方向	150x105x3; 260 °C/ MT 80 °C; 300 bar	%	acc. ISO 2577
Moulding shrinkage, normal	成型收缩率, 垂直方向	150x105x3; 260 °C / MT 80 °C; 300 bar	%	acc. ISO 2577
Post- shrinkage, parallel	后收缩, 流动方向	150x105x3; 80 °C; 1 h	%	acc. ISO 2577
Post- shrinkage, normal	后收缩, 垂直方向	150x105x3; 80 °C; 1 h	%	acc. ISO 2577
C Moulding shrinkage, parallel	成型收缩率, 流动方向	60x60x2; 260 °C / MT 80 °C; 500 bar	%	ISO 294-4
C Moulding shrinkage, normal	成型收缩率, 垂直方向	60x60x2; 260 °C / MT 80 °C; 500 bar	%	ISO 294-4
Post- shrinkage, parallel	后收缩, 流动方向	60x60x2; 80 °C; 1 h	%	ISO 294-4
Post- shrinkage, normal	后收缩, 垂直方向	60x60x2; 80 °C; 1 h	%	ISO 294-4
<b>Mechanical properties (23 °C/50 %rh) 机械性能</b>				
C Tensile modulus	拉伸模量	1 mm/min	MPa	ISO 527-1,-2
C Yield stress	屈服应力	50 mm/min	MPa	ISO 527-1,-2
C Yield strain	屈服应变	50 mm/min	%	ISO 527-1,-2
C Nominal strain at break	名义断裂应变	50 mm/min	%	ISO 527-1,-2
Stress at break	拉伸强度	50 mm/min	MPa	ISO 527-1,-2
Strain at break	断裂延伸率	50 mm/min	%	ISO 527-1,-2
C Charpy impact strength	CHARPY 冲击强度	23 °C	kJ/m <sup>2</sup>	ISO 179-1eU
C Charpy impact strength	CHARPY 冲击强度	-30 °C	kJ/m <sup>2</sup>	ISO 179-1eU
C Charpy notched impact strength	CHARPY 缺口冲击强度	23 °C	kJ/m <sup>2</sup>	ISO 179-1eA
C Charpy notched impact strength	CHARPY 缺口冲击强度	-30 °C	kJ/m <sup>2</sup>	ISO 179-1eA
Izod impact strength IZOD	冲击强度	23 °C	kJ/m <sup>2</sup>	ISO 180-1U
Izod impact strength IZOD	冲击强度	-30 °C	kJ/m <sup>2</sup>	ISO 180-1U
Izod notched impact strength	IZOD 缺口冲击强度	23 °C	kJ/m <sup>2</sup>	ISO 180-1A
Izod notched impact strength	IZOD 缺口冲击强度	-30 °C	kJ/m <sup>2</sup>	ISO 180-1A
Flexural modulus	弯曲模量	2 mm/min	MPa	ISO 178
Flexural strength	弯曲强度	2 mm/min	MPa	ISO 178
Flexural strain at flexural strength	弯曲强度下的应变	2 mm/min	%	ISO 178
Flexural stress at 3.5 % strain	应变下的弯曲应力	2 mm/min	MPa	ISO 178
<b>Thermal properties 热性能</b>				
C Temperature of deflection under load	热变形温度	1.80 MPa	°C	ISO 75-1,-2
C Temperature of deflection under load	热变形温度	0.45 MPa	°C	ISO 75-1,-2
C Vicat softening temperature	维卡软化温度	50 N; 50 °C/h	°C	ISO 306
Vicat softening temperature	维卡软化温度	10 N; 120 °C/h	°C	ISO 306
C Coefficient of linear thermal expansion, parallel	线性热膨胀系数 流动方向	23 to 55 °C	10-4/K	ISO 11359-1,-2
C Coefficient of linear thermal expansion, transverse	线性热膨胀系数 垂直方向	23 to 55 °C	10-4/K	ISO 11359-1,-2
C Burning behavior UL 94 (1.6 mm)	燃烧性	1.5 mm	Class	UL 94
<b>Electrical properties (23 °C/50 % rh) 电性能</b>				
C Relative permittivity	相对介电常数	100 Hz	-	IEC 60250
C Relative permittivity	相对介电常数	1 MHz	-	IEC 60250
C Dissipation factor	损耗因子	100 Hz	10-4	IEC 60250
C Dissipation factor	损耗因子	1 MHz	10-4	IEC 60250
C Volume resistivity	体积电阻率		Ohm·m	IEC 60093
C Surface resistivity	表面电阻率		Ohm	IEC 60093
C Electric strength	介电强度	1 mm	kV/mm	IEC 60243-1
C Comparative tracking index CTI	相比漏电起痕指数 CTI	Solution A 溶液 A	Rating	IEC 60112
<b>Other properties (23 °C) 其它性能</b>				
C Water absorption (Saturation value)	吸水性 (饱和值)	Water at 23 °C 水, 23 °C	%	ISO 62
C Water absorption (Equilibrium value)	吸水性 (平衡值)	23 °C; 50 % RH	%	ISO 62
C Density	密度		kg/m <sup>3</sup>	ISO 1183
<b>Processing conditions 测试试样工艺条件</b>				
C Injection moulding-Melt temperature	熔体温度		°C	ISO 294
C Injection moulding-Mold temperature	模具温度		°C	ISO 294
C Injection moulding-Injection velocity	注射速度		mm/s	ISO 294

这些典型性能数据只是作为通用信息。  
这些数据均是近似值, 不是产品规格的一部分。  
表中所列数据应该视为参考性数据。

Typical properties are provided as general information only.  
They are approximate and are not part of product specifications.  
These listed values should be used for reference purposes only.

通用 General purpose		抗紫外线级 UV-resistant		玻纤增强级 Glass reinforced		矿物填充级 Mineral filled		挤出 Extrusion	
1120		KU2-3050		1315GF		KU2-3154		1120S	
d.a.m.	cond.	d.a.m.	cond.	d.a.m.	cond.	d.a.m.	cond.	d.a.m.	cond.
6.0		6.0		2.5		8.5		2.8	
0.9	0.8	0.9	0.8	0.35	0.3	0.55		1.1	1.05
1.0	0.85	1.0	0.85	0.7	0.6	0.6		1.25	1.1
0.06		0.06		0.04		0.1		0.03	
0.05		0.05		0.05		0.1		0.03	
0.7		0.7		0.4				0.7	
0.8		0.8		0.35				0.8	
0.1		0.1		0.15				0.1	
0.1		0.1		0.05				0.1	
1900	1050	1900	1050	4800	4000	2700	2000	1700	950
40	30	40	30			55	39	39	29
3.2	13	3.2	13			2.9	4	3.5	13
≥ 50	≥ 100	≥ 50	≥ 100			35		≥ 50	≥ 100
38	29	38	29	82	70	38	33		
≥ 50	≥ 100	≥ 50	≥ 100	4.0	5.0	35	≥ 100		
N	N	N	N	36	36	150	≥ 150	N	N
N	N	N	N	36	36	100	60	N	N
74	≥ 74	74	≥ 74	10	≥ 10	8		72	≥ 72
16	≥ 16	16	≥ 16	6.0	≥ 6.0	6		23	≥ 25
N	N	N	N	28	28	100	≥ 100	N	N
N	N	N	N	28	28	60	55	N	N
70	≥ 70	70	≥ 70	10	10	7.0	≥ 7.0	70	≥ 70
20	≥ 20	20	≥ 20	6	≥ 6	5	5	23	≥ 25
1800	1000	1800	1000	4100	3600	2500	1800	1600	950
60	39	60	39	110	98	80	62	56	36
5.7	6.6	5.7	6.6	4.0	5.0	5.0	6.0	5.6	6.9
54	32	54	32	108	96	75	55	50	28
68	93	68	93	95	98	83	93	64	89
91	99	91	99	175	170	97	96	91	96
102	98	102	98	112	100	105	95	97	92
185	170	185	170	195	175	130	115	185	165
1.05		1.05		0.4		0.65		1.05	
1.15		1.15		1.2		1.0		1.15	
HB		HB		HB		HB		HB	
4.3	6.7	4.3	6.7	4.6	7.9	3.4	5.0		
3.6	3.7	3.6	3.7	3.8	4.0	3.1	3.3		
290	1000	290	1000	320	1100	150	650		
300	550	300	550	280	700	150	400		
1E12	1E10	1E12	1E10	1E12	1E10	1E13	1E11		
1E14	1E14	1E14	1E14	1E13	1E13	1E15	1E14		
34	34	34	34	40	36	40	40		
600		600		600		600			
~ 6.0		~ 6.0		~ 3.8		~ 3.9		~ 6.0	
~ 1.7		~ 1.7		~ 1.3		~ 1.3		~ 1.7	
1060		1060		1170		1110		1060	
260		260		260		260		260	
80		80		80		80		80	
40		40		40		40		40	

C These property characteristics are taken from the CAMPUS® plastics data bank and are based on the international catalogue of basic data for plastics according to ISO 10350 (Plastics Acquisition and Presentation of Comparable Single-Point Data, 1993).

C 这些性能数据来源于 CAMPUS 塑料数据库, 并且依据 ISO 10350 标准 (塑料可比性单点数据的采集和介绍, 1993), 符合塑料基本数据的国际分类原则。