

Technical Data

Product Description

TOTAL Polypropylene
PPR 9220

Polypropylene PPR 9220 is a nucleated random copolymer polypropylene with a Melt Flow Index of 20 g/min for the injection moulding of articles with high transparency and excellent surface appearance.

Polypropylene PPR 9220 is intended for household goods, thin wall packaging, caps.

Bormed RF830MO is a resin intended for evaluation for use in Healthcare applications.

Bormed RF830MO is a transparent polypropylene random copolymer, modified with a nucleating agent, suitable for articles which need post sterilisation with radiation. Bormed RF830MO is characterized by easy processability, high transparency, high gloss and a good stiffness-impact balance. Products moulded from this grade and radiated with the dose of 25 kGy have a shelf-life of 5 years, if properly stored. Material can also be sterilised with ethylene oxide and steam.

Applications

Bormed RF830MO has been evaluated according to different regulations and norms. Typical applications are mentioned below for Medical devices or Pharmaceutical & Diagnostic packaging. However, Borealis should be consulted for final approval to evaluate the use of Bormed RF830MO .

Bormed™
RF830MO

- Disposable non pre-filled syringes
- Needle hubs
- Catheter connections
- Laboratory disposable
- Diagnostic products
- Blood collection tubes

This grade may only be used for the applications listed in the Product Datasheet and only to the extent that the application is within the scope of the tests set out in the Statement on Compliance to Regulations on Medical Use for that grade. If an application is not listed in the Product Datasheet, the grade can be used for such application only after express written consent of the Borealis Marketing Manager, Healthcare. Borealis prohibits the use of any healthcare grade product in an implantable device that is introduced into the human body by surgical intervention and that is intended to remain in place following surgical procedure.

RF366MO is a specially modified highly-transparent polypropylene random copolymer with medium melt flow rate. This grade is designed for high-speed injection moulding and contains nucleating and antistatic additives. The improved processability, even at low melt temperature, allows energy savings and faster cycle time.

Borealis PP
RF366MO

Products originating from this grade have excellent transparency, good organoleptic properties, good balance of stiffness and impact strength at ambient temperatures. These properties, together with high gloss, make this grade excellent choice for household and packaging articles.

RF366MO can be also used in injection stretch blow moulding (ISBM).

RF366MO is intended for injection moulding applications requiring excellent transparency

- Thin wall packaging
- Houseware containers



- Caps and closures
- Sweet-boxes
- Cosmetics
- Appliances
- Baby bottles

Special Features:

- Outstanding optical properties
- Improved gloss and excellent transparency
- Very good processability
- Good organoleptic properties

Polypropylene random copolymer.

Titanpro SM498 is a clarified grade designed for high transparency articles. The base resin meets the requirements of the U.S. Food and Drug Administration as specified in 21 CFR 177.1520(a)(3)(i) and (c)3.1a. The adjuvant meet their respective FDA regulations and 21 CFR 177.1520(b). In summary, this resin meets the FDA criteria covering safe use of polyolefin articles and component of articles intended for food Contact use.

TSCA Registry: CAS# 9010-79-1

APPLICATIONS

High clarity oriented PP bottles for hot filled applications, moisture sensitive packaging, baby feeding bottles, toiletries and detergent packaging, etc. High transparent thin walled containers, storage containers, large particles, housewares.

ADVANTAGES

Excellent clarity. Good balance of rigidity and impact resistance. Excellent moisture barrier. Cycle time reduction with low processing melt temperature. Utilities cost saving. Suitable for hot filling and thin walled products.

FABRICATION

Equipment - injection stretch blow molding (ISBM) machine, injection molding machine.

Techniques - standard processing.

TITANPRO®
SM498

TAIRIPRO®
K4515

Injection Molding

CHARACTERISTICS: High clarity, Anti-static, Good resistance to chemical

General	TOTAL Polypropylene PPR 9220	Bormed™ RF830MO	Borealis PP RF366MO	TITANPRO® SM498	TAIRIPRO® K4515
Manufacturer / Supplier	• TOTAL Refining & Chemicals	• Borealis AG	• Borealis AG	• Lotte Chemical Titan (M) Sdn. Bhd.	• Formosa Chemicals & Fibre Corporation
Generic Symbol	• PP 无规共聚物	• PP 无规共聚物	• PP , 未指定	• PP 无规共聚物	• PP 无规共聚物
Material Status	• 已商用 : 当前有效				
资料 ¹	• Technical Datasheet (English)	• Processing (English) • Technical Datasheet (English)			
UL 黄卡 ²	• E72824-103484704	--	--	--	• E162823-306703



General	TOTAL Polypropylene PPR 9220	Bormed™ RF830MO	Borealis PP RF366MO	TITANPRO® SM498	TAIRIPRO® K4515
搜索 UL 黄卡	<ul style="list-style-type: none"> TOTAL Refining & Chemicals 	<ul style="list-style-type: none"> Borealis AG 	<ul style="list-style-type: none"> Borealis AG 	<ul style="list-style-type: none"> Lotte Chemical Titan (M) Sdn. Bhd. 	<ul style="list-style-type: none"> Formosa Chemicals & Fibre Corporation TAIRIPRO®
Availability	<ul style="list-style-type: none"> 欧洲 	<ul style="list-style-type: none"> 北美洲 非洲和中东 拉丁美洲 欧洲 亚太地区 	<ul style="list-style-type: none"> 北美洲 非洲和中东 拉丁美洲 欧洲 亚太地区 	<ul style="list-style-type: none"> 北美洲 	<ul style="list-style-type: none"> 北美洲 欧洲 亚太地区
Additive	<ul style="list-style-type: none"> 成核剂 	--	<ul style="list-style-type: none"> 成核剂 抗静电性 	--	--
Features	<ul style="list-style-type: none"> 成核的 清晰度, 高 无规共聚物 优良外观 	<ul style="list-style-type: none"> 辐射消毒 高光 环氧乙烷消毒 极佳的可印刷性 良好的加工性能 良好刚性 良好抗撞击性 流动性高 耐化学品性能, 良好 清晰度, 高 无规共聚物 	<ul style="list-style-type: none"> 成核的 高光 光学性能 抗静电性 可回收材料 良好的感官特征 良好的加工性能 良好刚性 良好抗撞击性 清晰度, 高 中等流动性 	<ul style="list-style-type: none"> 防潮 高刚性 快的成型周期 良好抗撞击性 清晰度, 高 食品接触的合规性 无规共聚物 	<ul style="list-style-type: none"> 抗静电性 耐化学品性能, 良好 清晰度, 高 无规共聚物
Uses	<ul style="list-style-type: none"> 薄壁包装 护罩 家用货品 	<ul style="list-style-type: none"> 管件 护罩 实验室器具 外壳 医疗/护理用品 医院用品, 一次性 	<ul style="list-style-type: none"> 薄壁包装 电器用具 护罩 化妆品 家用货品 瓶子 外壳 	<ul style="list-style-type: none"> 包装 家用货品 瓶子 容器 浴室配件 	--
Agency Ratings	<ul style="list-style-type: none"> EC 1907/2006 (REACH) -- 	--	--	<ul style="list-style-type: none"> FDA 21 CFR 177.1520(a) 3 (i) FDA 21 CFR 177.1520(b) FDA 21 CFR 177.1520(c) 3.1a TSCA Listed on Inventory³ 	<ul style="list-style-type: none"> EC 1907/2006 (REACH) FDA 21 CFR 177.1520(c) 3.1a
RoHS Compliance	<ul style="list-style-type: none"> RoHS 合规 	--	--	--	<ul style="list-style-type: none"> RoHS 合规
UL File Number	--	--	--	--	<ul style="list-style-type: none"> E162823
Appearance	<ul style="list-style-type: none"> 清晰/透明 	<ul style="list-style-type: none"> 清晰/透明 	--	--	--
Forms	<ul style="list-style-type: none"> 粒子 	<ul style="list-style-type: none"> 粒子 	--	--	--



General	TOTAL Polypropylene PPR 9220	Bormed™ RF830MO	Borealis PP RF366MO	TITANPRO® SM498	TAIRIPRO® K4515		
Processing Method	• 注射成型	• 注射成型	• 注射成型	• 注射成型	• 注射成型	• Injection Stretch Blow Molding	• 注射成型
Physical	TOTAL Polypropylene PPR 9220	Bormed™ RF830MO	Borealis PP RF366MO	TITANPRO® SM498	TAIRIPRO® K4515	单位制	测试方法
Density / Specific Gravity							
--	--	--	--	--	0.898	g/cm³	ASTM D792
--	0.902	0.905	0.905	--	--	g/cm³	ISO 1183
--	--	--	--	0.900	--	g/cm³	ASTM D1505
Apparent (Bulk) Density	0.53	--	--	--	--	g/cm³	ISO 1183
Melt Mass-Flow Rate (MFR)							
230°C/2.16 kg	--	--	--	20	18	g/10 min	ASTM D1238
230°C/2.16 kg	20	20	20	--	--	g/10 min	ISO 1133
Molding Shrinkage							
流动	--	--	1.0 到 2.0	1.3 到 1.4	--	%	No Standard
流动 : 23°C	--	--	--	--	1.5 到 2.0	%	Internal Method
--	--	1.0 到 2.0	--	--	--	%	No Standard
Water Absorption (24 hr)	--	--	--	0.020	--	%	ASTM D570
Mechanical	TOTAL Polypropylene PPR 9220	Bormed™ RF830MO	Borealis PP RF366MO	TITANPRO® SM498	TAIRIPRO® K4515	单位制	测试方法
Tensile Modulus							
--	1000	--	--	--	--	MPa	ISO 527-2
--	--	1150	--	--	--	MPa	ISO 527-2/1
--	--	--	1200	--	--	MPa	ISO 527-2/50
Tensile Strength							
屈服	--	--	--	29.4	--	MPa	ASTM D638
屈服, 23°C	--	--	--	--	30.0	MPa	ASTM D638
屈服	20.0	--	--	--	--	MPa	ISO 527-2
屈服	--	28.0	29.0	--	--	MPa	ISO 527-2/50
Tensile Elongation							
屈服	--	--	--	10	--	%	ASTM D638
屈服	10	--	--	--	--	%	ISO 527-2
屈服	--	12	11	--	--	%	ISO 527-2/50
断裂, 23°C	--	--	--	--	> 200	%	ASTM D638



Mechanical	TOTAL Polypropylene PPR 9220	Bormed™ RF830MO	Borealis PP RF366MO	TITANPRO® SM498	TAIRIPRO® K4515	单位制	测试方法
Flexural Modulus							
--	--	--	--	1270	--	MPa	ASTM D790B
23°C	--	--	--	--	1130	MPa	ASTM D790A
--	900	1100	1150	--	--	MPa	ISO 178
Impact	TOTAL Polypropylene PPR 9220	Bormed™ RF830MO	Borealis PP RF366MO	TITANPRO® SM498	TAIRIPRO® K4515	单位制	测试方法
Charpy Notched Impact Strength							
23°C	8.5	--	--	--	--	kJ/m²	ISO 179
23°C	--	6.0	5.5	--	--	kJ/m²	ISO 179/1eA
Notched Izod Impact							
23°C	--	--	--	59	--	J/m	ASTM D256A
23°C, 3.18 mm	--	--	--	--	59	J/m	ASTM D256
23°C	6.5	--	--	--	--	kJ/m²	ISO 180
Hardness	TOTAL Polypropylene PPR 9220	Bormed™ RF830MO	Borealis PP RF366MO	TITANPRO® SM498	TAIRIPRO® K4515	单位制	测试方法
Rockwell Hardness							
R 级, 23°C	--	--	--	--	95		ASTM D785
R 级	--	--	--	85	--		ASTM D785
R 计秤	82	--	--	--	--		ISO 2039-2
Thermal	TOTAL Polypropylene PPR 9220	Bormed™ RF830MO	Borealis PP RF366MO	TITANPRO® SM498	TAIRIPRO® K4515	单位制	测试方法
Deflection Temperature Under Load							
0.45 MPa, 未退火	--	--	--	85.0	--	°C	ASTM D648
0.45 MPa, 未退火 ⁵	--	80.0	--	--	--	°C	ISO 75-2/B
0.45 MPa, 未退火	--	--	75.0	--	--	°C	ISO 75-2/B
1.8 MPa, 未退火, 6.35 mm	--	--	--	--	95.0	°C	ASTM D648
Vicat Softening Temperature							
--	130	--	--	--	--	°C	ISO 306/A50
--	67.0	--	--	--	--	°C	ISO 306/B50
Melting Temperature (DSC)	146	--	--	--	--	°C	ISO 3146
Flammability	TOTAL Polypropylene PPR 9220	Bormed™ RF830MO	Borealis PP RF366MO	TITANPRO® SM498	TAIRIPRO® K4515	单位制	测试方法
Flame Rating	--	--	--	--	HB		UL 94



Injection	TOTAL Polypropylene PPR 9220	Bormed™ RF830MO	Borealis PP RF366MO	TITANPRO® SM498	TAIRIPRO® K4515	单位制
Processing (Melt) Temp	--	220 到 250	200 到 260	--	220 到 240	°C
Mold Temperature	--	30 到 40	30 到 40	--	30 到 50	°C
Injection Pressure	--	--	--	--	3.92 到 8.83	MPa
Injection Rate	--	中等偏快	快速	--	--	
Holding Pressure	--	20.0 到 50.0	20.0 到 50.0	--	--	MPa

备注

- ¹ 通过这些链接您能够访问供应商资料。我们尽量保证及时更新资料；不过您可以从供应商处了解最新资料。
- ² UL 黄卡含有 UL 验证的易燃性和电气特性。UL Prospector 持续努力在 Prospector 中将黄卡链接至单个塑料材料，然而此列表可能未包括所有相应链接。重要的是，我们对 Prospector 中找到的这些黄卡和塑料材料之间的关联进行验证。如需完整的黄卡列表，请访问 UL 黄卡搜索。
- ³ CAS# 9010-79-1
- ⁴ 一般属性：这些不能被视为规格。
- ⁵ Injection molded specimen



购买地点

供应商	
TOTAL Polypropylene PPR 9220	TOTAL Refining & Chemicals Houston, TX USA 电话: 713-483-5000 Web: http://www.totalrefiningchemicals.com/
Bormed™ RF830MO	Borealis AG Vienna, Austria 电话: +43-122-400-302 Web: http://www.borealisgroup.com/
Borealis PP RF366MO	Borealis AG Vienna, Austria 电话: +43-122-400-302 Web: http://www.borealisgroup.com/
TITANPRO® SM498	Lotte Chemical Titan (M) Sdn. Bhd. Kuala Lumpur, Malaysia 电话: +60-3-2093-4222 Web: http://www.lottechem.my/
TAIRIPRO® K4515	Formosa Chemicals & Fibre Corporation Taipei, Taiwan 电话: +886-2-2712-2211 Web: http://en.fcfc-plastics.com/



分销商

TOTAL Polypropylene PPR 9220

Plastribution

电话: +44-845-345-4560
 Web: <http://www.plastribution.co.uk/>
 供货地区: United Kingdom

RESINEX Group

RESINEX is a Pan European distribution company. Contact RESINEX for availability of individual products by country.

电话: +32-14-672511
 Web: <http://www.resinex.com/>
 供货地区: Europe

SNETOR Distribution

SNETOR Distribution is a Pan European distribution company. Contact SNETOR for availability of individual products by country.

电话: +33-1-4904-8888
 Web: <http://www.snetor.com/>
 供货地区: France

Telko Oy

Telko Oy is a Pan European distribution company. Contact Telko Oy for availability of individual products by country.

电话: +358-9-5211
 Web: <http://www.telko.com/>
 供货地区: Denmark, Estonia, Finland, Latvia, Lithuania, Norway, Russian Federation, Sweden

TER HELL Plastic GmbH

TER HELL Plastic is a Pan European distribution company. Contact TER HELL Plastic for availability of individual products by country.

电话: +49-2366-5661-0
 Web: <https://www.terplastics.com/>
 供货地区: France, Germany, Poland, Spain

Bormed™ RF830MO

Biesterfeld

Biesterfeld is a Pan European distribution company. Contact Biesterfeld for availability of individual products by country.

电话: +49-40-32008-0
 Web: <http://www.biesterfeld-plastic.com/>
 供货地区: Bosnia and Herzegovina, Bulgaria, Ireland, Romania, Serbia, Turkey, United Kingdom

Nexeo Plastics

电话: 833-446-3936
 Web: <https://www.nexeoplastics.com/>
 供货地区: North America

Nexeo Plastics - Europe

Nexeo Plastics is a Pan European distribution company. Contact Nexeo for availability of individual products by country.

电话: +34-93-480-9125
 Web: <http://www.nexeosolutions.com/>
 供货地区: Austria, Belgium, Bulgaria, Czech Republic, Denmark, Finland, France, Germany, Ireland, Italy, Latvia, Lithuania, Luxembourg, Netherlands, Norway, Poland, Portugal, Romania, Russian Federation, Slovakia, Spain, Sweden, Switzerland, United Kingdom



Borealis PP RF366MO

Biesterfeld

Biesterfeld is a Pan European distribution company. Contact Biesterfeld for availability of individual products by country.

电话: +49-40-32008-0

Web: <http://www.biesterfeld-plastic.com/>

供货地区: Bosnia and Herzegovina, Bulgaria, Ireland, Romania, Serbia, Turkey, United Kingdom

M. Holland Canada Company

电话: 905-665-1168

Web: <http://www.mholland.com/>

供货地区: Canada

M. Holland Company

电话: 855-497-1403

Web: <http://www.mholland.com/>

供货地区: Mexico, United States

Nexeo Plastics - Europe

Nexeo Plastics is a Pan European distribution company. Contact Nexeo for availability of individual products by country.

电话: +34-93-480-9125

Web: <http://www.nexeosolutions.com/>

供货地区: Austria, Belgium, Bulgaria, Czech Republic, Denmark, Finland, France, Germany, Ireland, Italy, Latvia, Lithuania, Luxembourg, Netherlands, Norway, Poland, Portugal, Romania, Russian Federation, Slovakia, Spain, Sweden, Switzerland, United Kingdom

RESINEX Group

RESINEX is a Pan European distribution company. Contact RESINEX for availability of individual products by country.

电话: +32-14-672511

Web: <http://www.resinex.com/>

供货地区: Europe

TITANPRO® SM498

请联系供应商以便为 TITANPRO® SM498 查找分销商

TAIRIPRO® K4515

Click Plastics AG

Click Plastics AG is a Pan European distribution company. Contact Click Plastics for availability of individual products by country.

电话: +49-6251-770-690-0

Web: <http://www.clickplastics.com>

供货地区: Germany

Osterman & Company

电话: 800-914-4437

Web: <http://www.osterman-co.com/>

供货地区: North America

PolySource

电话: 866-558-5300

Web: <http://www.polysource.net/>

供货地区: North America



Resinal de México
电话: +52-55-5254-7600
Web: <http://resinal.mx/>
供货地区: Mexico

