

皇家北欧化工RA150E原料升级



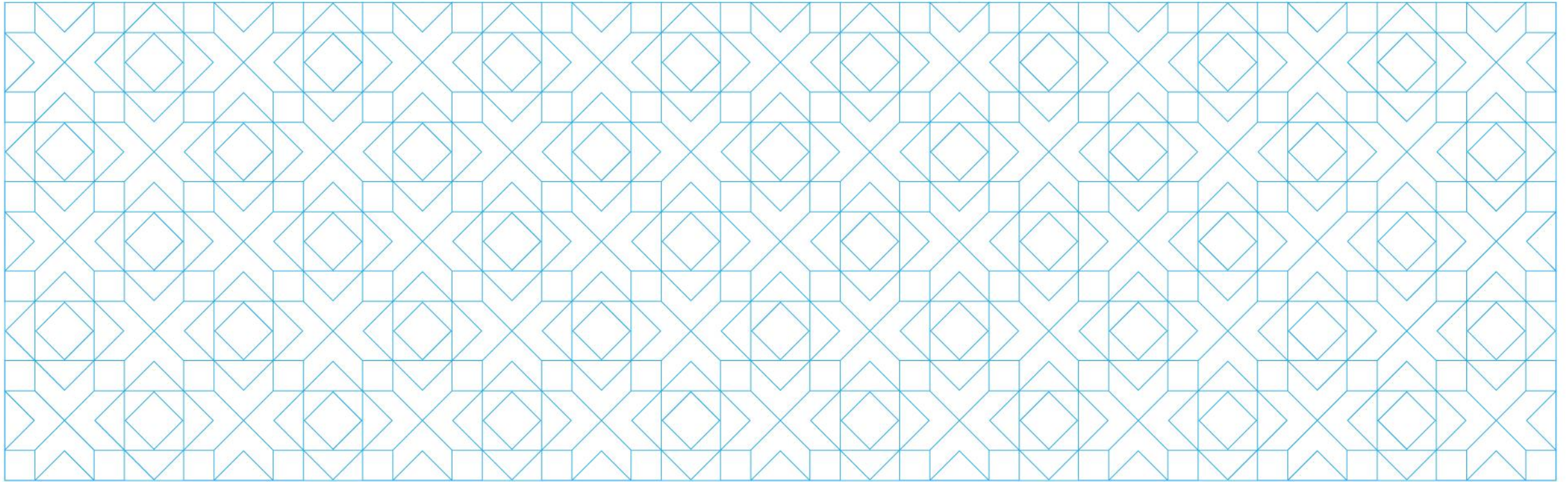
ROYAL CROWN



ROYAL CROWN

RA150E- INNOVATIVE AND RELIABLE PPR FOR H&C WATER APPLICATIONS

RA150E-用于冷热水应用的创新可靠PPR



MAIN OUTLINE

主要大纲

1 Review PP-R

1 回顾PP-R

2 Highlights and advantages of the RA150E

2 RA150E的亮点与优势

3 Application scenarios of the RA150E

3 RA150E的应用场景

4 Summary and Q&A

4 总结与Q&A



ROYAL CROWN

ROYAL CROWN



ROYAL CROWN

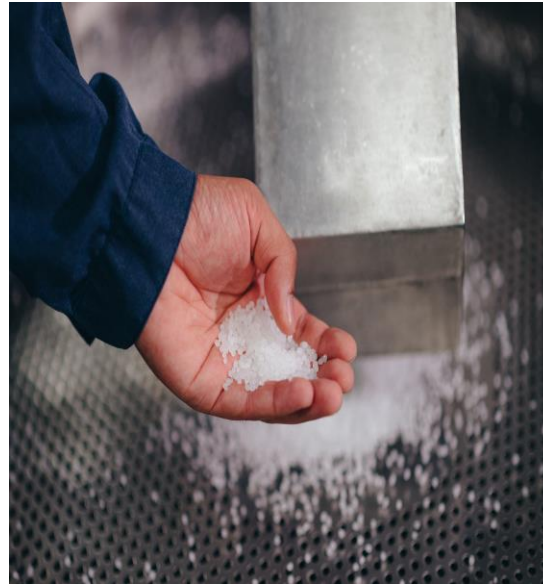
1 Review PP-R

1 回顾PP-R

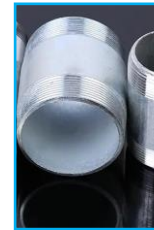


ROYAL CROWN

HISTORICAL CHANGES OF H&C WATER PIPES IN CHINESE CONSTRUCTION 中国建筑内冷热水管的历史变迁



1



Water pipe of metal
金属水管

2



Plastic water pipe
塑料水管

- At the beginning of the 20th century, metal pipes occupied the main position of home improvement market. But it will bring corrosion, secondary pollution...
20世纪初，金属管占据了家装市场的主要地位。但会带来腐蚀、二次污染...
- By the beginning of the 21st century, plastic PPR pipes have gradually become the mainstream of construction water supply pipes.
到了21世纪初，塑料PPR管逐渐成为建筑供水管道的主流。

2 Highlights and advantages of the RA150E

2 RA150E的亮点与优势

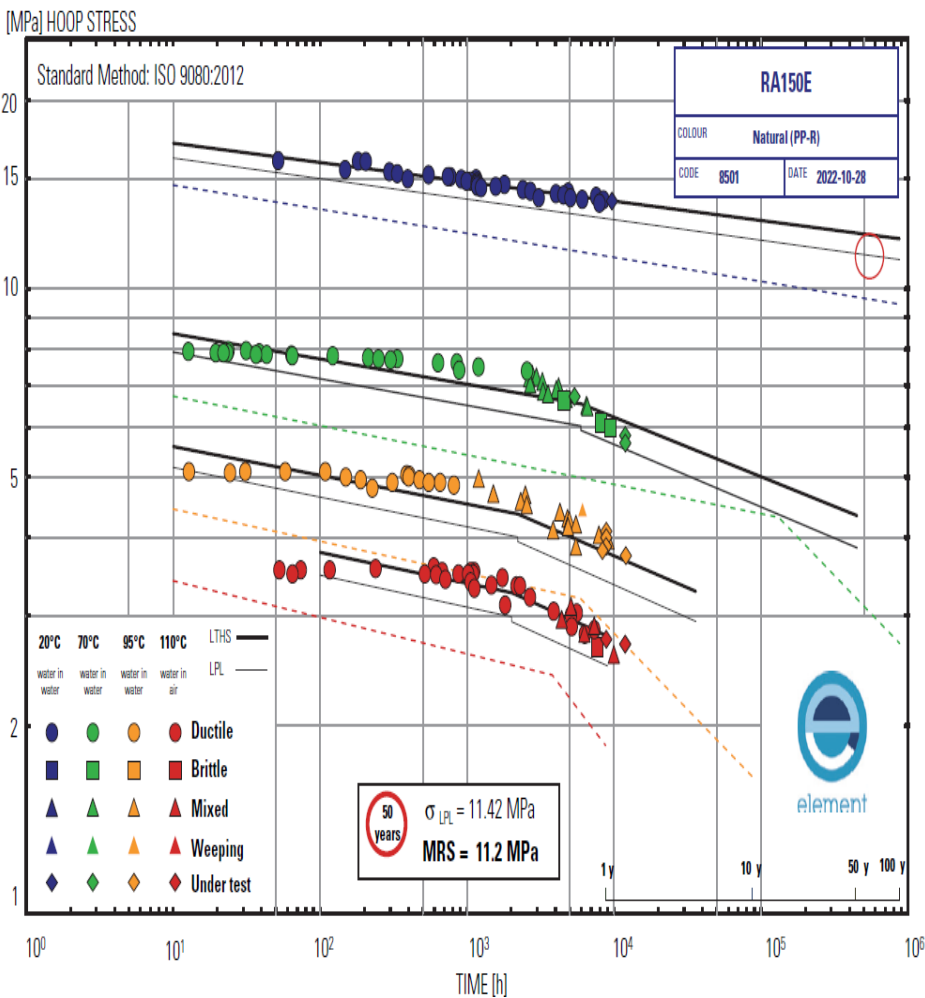
RA150E ADVANTAGE 1: COMPARISON OF HPT PROPERTIES AT DIFFERENT TEMPERATURES

RA150E的优点1: 不同温度下, 打压性能对比



ROYAL CROWN

RA140E	RA150E
$\sigma_{LPL}(20^{\circ}\text{C}, 50\text{yr})=9.2\text{ MPa}$ MRS=8 Mpa 最低要求强度=8 Mpa	$\sigma_{LPL}(20^{\circ}\text{C}, 50\text{yr})=11.4\text{ MPa}$ MRS=11.2MPa 最低要求强度=11.2 Mpa
RA150E advantage (vs RA140E) : RA150E的优势 (与RA 140E相比) : ➤ Higher safety factor 更高的安全性 ➤ Longer lifetime 更久的使用寿命 ➤ Peace of mind 安心使用	



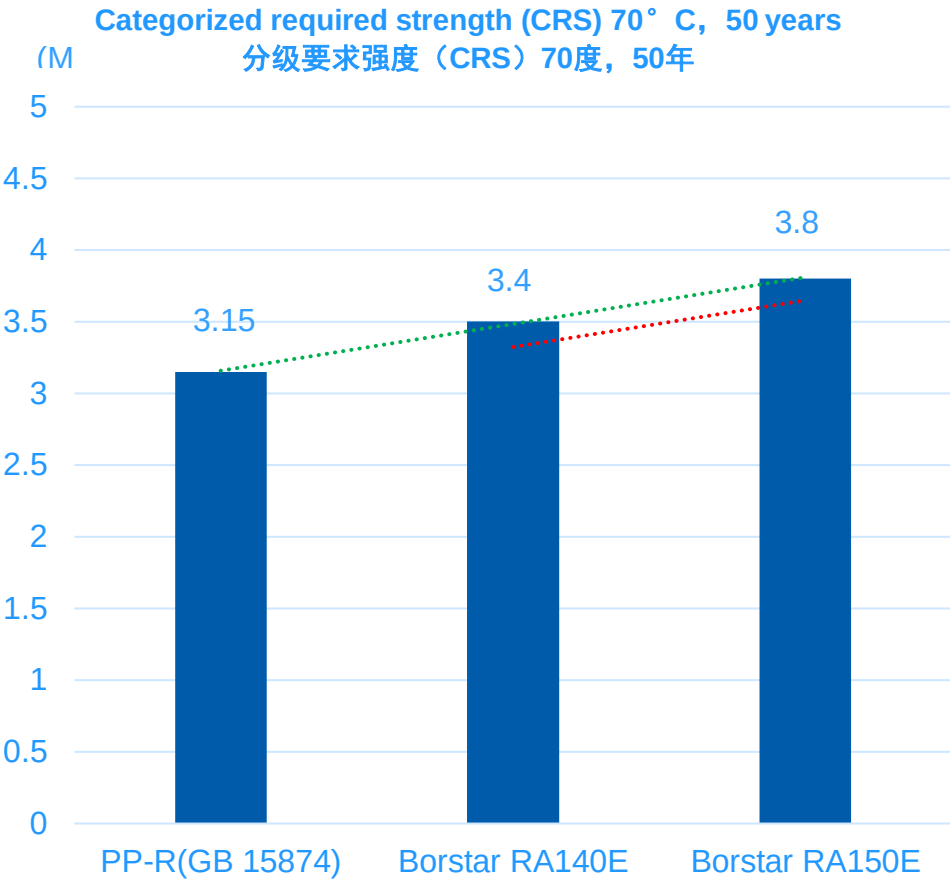


ROYAL CROWN

RA150E ADVANTAGE 1: COMPARISON OF HPT PROPERTIES AT DIFFERENT TEMPERATURES

RA150E的优点1: 不同温度下，打压性能对比

RA140E	RA150E
$\sigma_{LPL}(70^{\circ}\text{C}, 50\text{yr})=3.4\text{ MPa}$ CRS=3.4 Mpa 分级要求强度=3.4 Mpa	$\sigma_{LPL}(70^{\circ}\text{C}, 50\text{yr})=3.8\text{ MPa}$ CRS=3.8 Mpa 分级要求强度=3.8 Mpa
RA150E advantage (vs RA140E) : RA150E的优势（与RA 140E相比）: ➢ Higher safety factor 更高的安全性 ➢ Longer lifetime 更久的使用寿命 ➢ Peace of mind 安心使用	





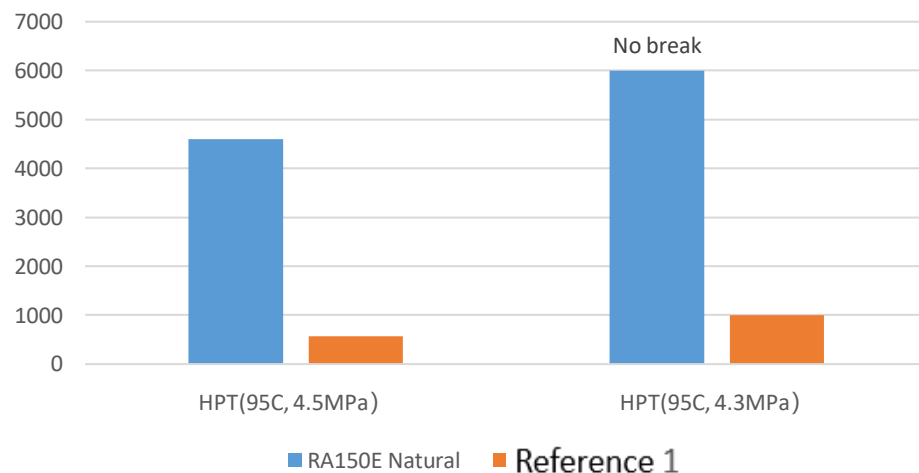
ADVANTAGE 1 OF THE RA150E: COMPARISON OF VOLTAGE PERFORMANCE

RA150E的优点1: 耐压性能比较

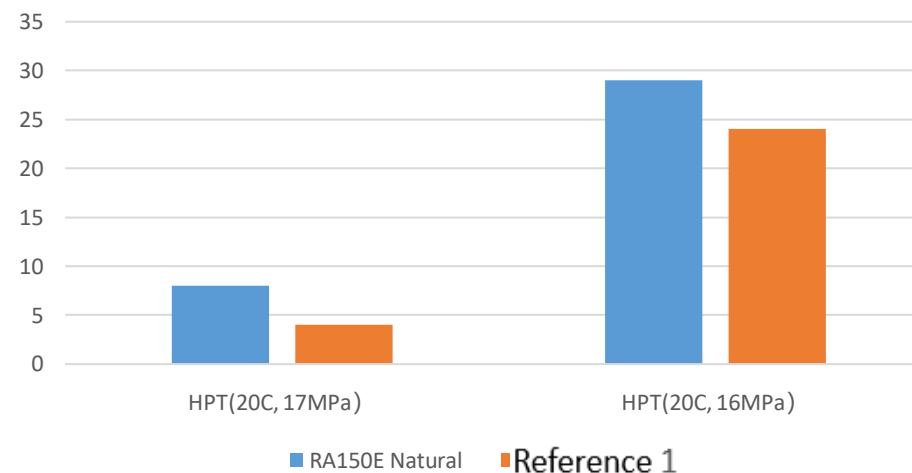
PIPE SAMPLE FROM “CUSTOMER A”

“管厂A”的样品测试对比

Hour (小时) HPT(95°C) RA150E VS Reference 1



Hour (小时) HPT(20°C) RA150E VS Reference 1



- RA150E show better HPT performance than “reference 1” especially at 95°C;
对比试验数据显示，RA150E比“参考品1”具有更优异的HPT性能，特别是在95° C高温情况下。



ROYAL CROWN

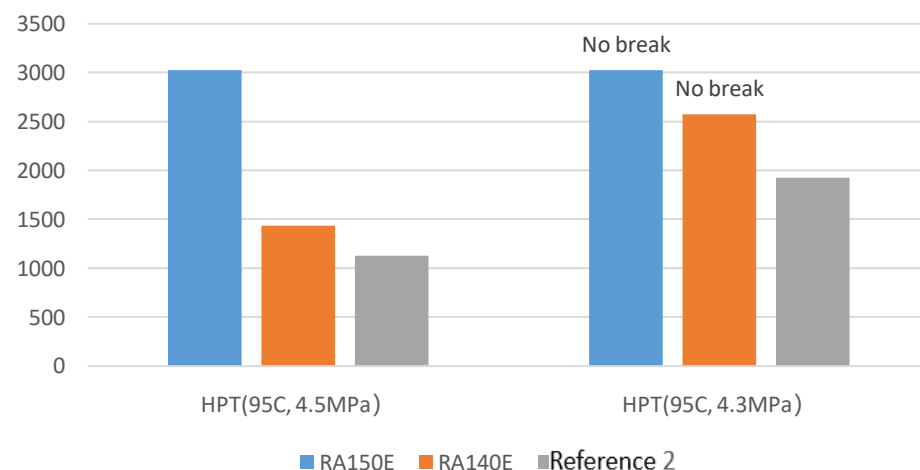
ADVANTAGE 1 OF THE RA150E: COMPARISON OF VOLTAGE PERFORMANCE

RA150E的优点1：耐压性能比较

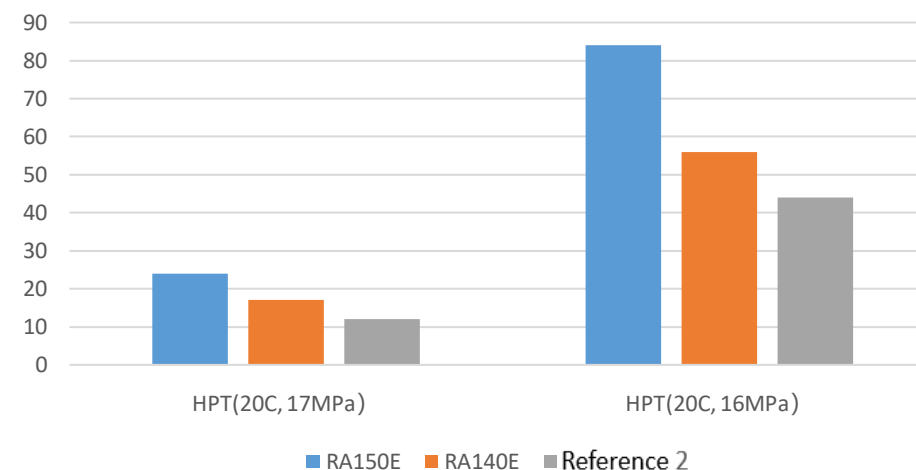
PIPE SAMPLE FROM“CUSTOMER B”

“管厂B”的样品测试对比

Hour (小时) HPT(95°C) RA150E VS RA140E / Reference 2



Hour (小时) HPT(20°C) RA150E VS RA140E VS Reference 2



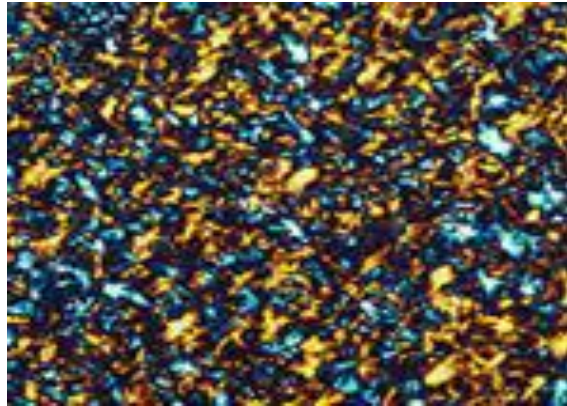
- RA150E show better HPT performance than RA140E and “Reference 2”, especially at 95°C and the relevant experimental data are also better than RA140E ; 对比试验数据显示，RA150E比 “参考品2”具有更优异的HPT性能，特别是在95° C高温情况下，并且相关实验数据，也比RA140E更好；

RA150E ADVANTAGE 2: STABLE SHRINKAGE & BETTER PIGMENT DISPERSION

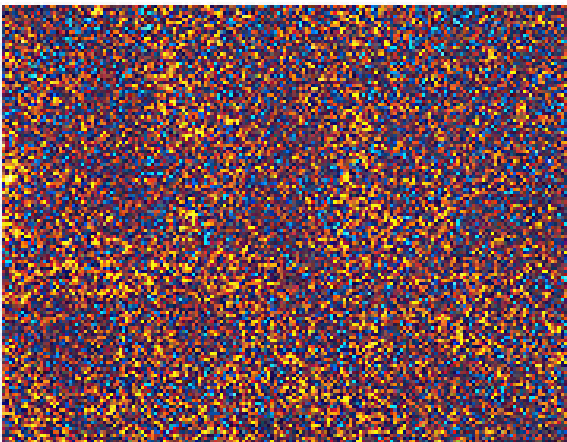
RA150E的优点2：稳定的收缩 & 更好的颜料分散



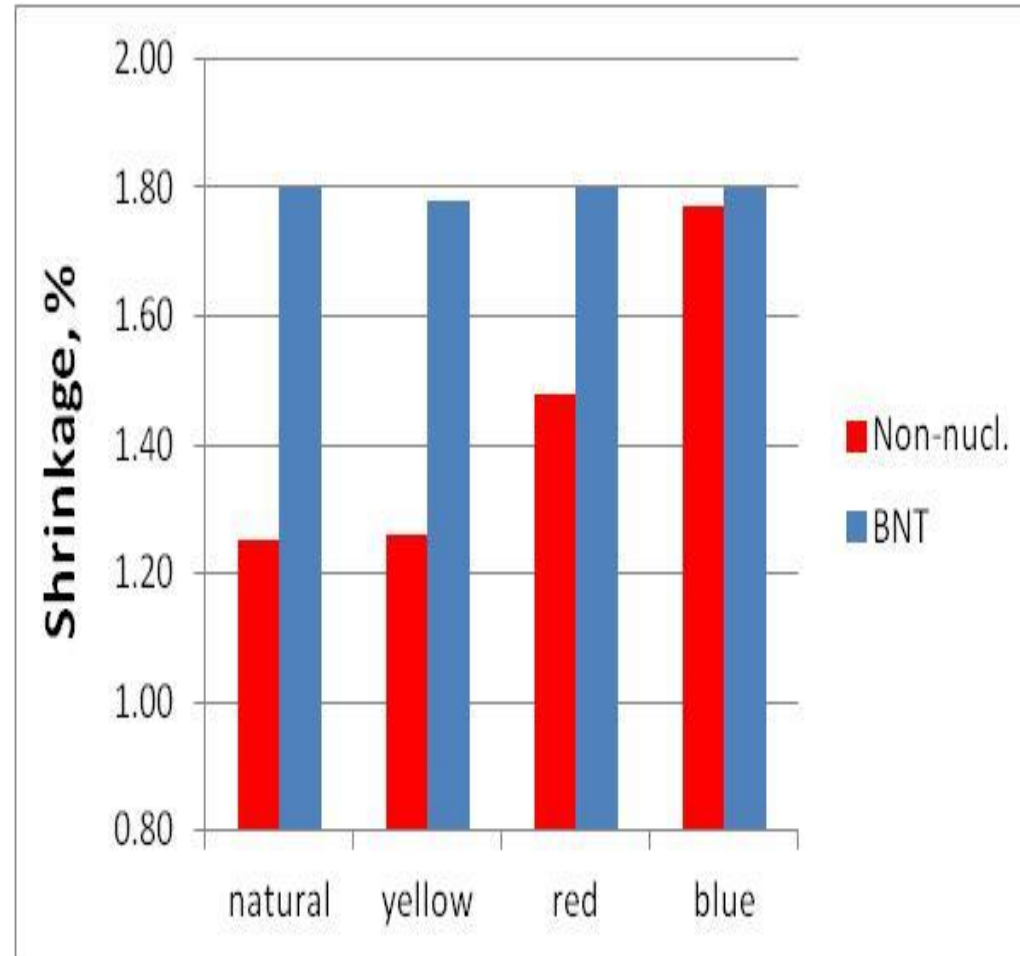
ROYAL CROWN



Normal Nucleated PP-R
普通成核PP-R



BNT Nucleated PP-R
BNT成核PP-R



- 1 BNT nucleated crystals are finer, which makes the material shrink more stable;
BNT成核晶体更细，使材料收缩更稳定；
- 2 The crystallization temperature is higher, the crystallization process is faster, then the molding cycle of pipe fittings can be shortened;
结晶温度更高、过程更快，可以使管件成型周期缩短；
- 3 The nucleating agent has good dispersibility and consistency
成核剂的分散性、一致性好；
- 4 Improve the uniformity of pigment distribution in the substrate;
改善颜料在基体中分布均匀性；
- 5 The shrinkage rate of "non-nucleating" PP-R with different colors is very different.;
不同颜色的“非成核”PP-R，“收缩率”差异较大；

RA150E ADVANTAGE 3: STABLE SHRINKAGE & BETTER PIGMENT DISPERSION

RA150E的优点3： 更高效的挤出产量（管道方面）

DN20*2.8 RA150E NATURAL COLOUR IN “CUSTOMER A”

Setting 设置参数		Unit	RA150E	Reference
Screw Speed 螺杆转速		[1/min]	109.91	115.94
Motor Load 扭矩		[%]	62.33	59.97
Melt Pressure 熔体压力		[bar]	154.1	141
Melt Temperature 熔体温度		[°C]	200.6	200.4
Haul off speed 1 牵引速度		[1/min]	18.4	
Throughput 生产量		Kg/h	156.7	156.2
Throughput/Screw speed 生产量/螺杆速度		[kg/h]/[1/min]	1.43	1.35
Enerfy? Energy consumption? 能耗量		KWh/kg	191.9	195.4
Barrel Temperature 机筒温度	Zone 1	[°C]	185	185
	Zone 2	[°C]	186	186
	Zone 3	[°C]	193	193
	Zone 4	[°C]	188	188
	Adapter	[°C]	190	190
Tooling Temperature 模具温度	Zone 1	[°C]	215	215
	Zone 2	[°C]	200	200
	Zone 3	[°C]	205	205
	Zone 4	[°C]	210	205



- Lower die swell and stable production with RA150E; RA150E口模膨胀小，生产过程更稳定；
- Output : RA150E is 6% higher than Reference; 挤出：RA150E比“参考品”挤出量高约 6%；
- Energy consumption: RA150E is about 2% lower than Reference; 能耗RA150E，比“参考品”低约2%（工业电费）；

ROYAL CROWN





ROYAL CROWN

3 Application scenarios of the RA150E

3 RA150E的应用场景

A WIDE RANGE OF APPLICATION SCENARIOS FOR PP-R PIPES

PP-R管材的广泛应用场景



ROYAL CROWN



- Fire sprinkler piping system
消防喷淋管路系统

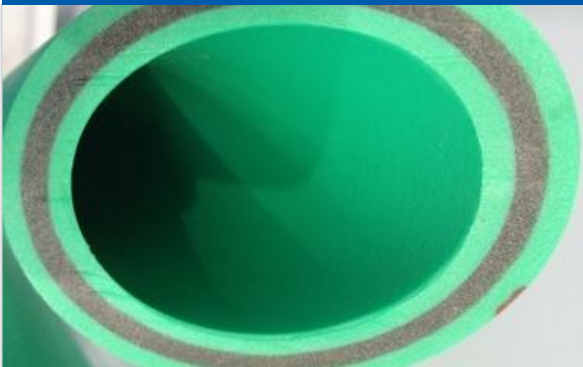


- Composite Pipes
复合管
- Structure:
结构:
PP-R/Adhesive/Steel/Adhesive /PP-R
PP-R/胶粘剂/钢/胶粘剂/PP-R

- Composite Pipes
复合管
- Structure:
结构:
PP-R/Adhesive/Al/Adhesive /PP-R
PP-R/胶粘剂/铝/胶粘剂/PP-R



- Composite Pipes
复合管
- Structure:
结构:
PP-R/ PPR+GF /PP-R
PP-R/PPR+玻纤增强/PP-R



- Composite Pipes
复合管
- Structure:
结构:
PP-RCT/ PP-RCT+ Basalt Fiber/PP-RCT
PP-RCT/PP-RCT +玄武岩纤维/PP-RCT



- Function Oriented
功能管
- Bacteria resistant composite pipes
耐磨复合管



ROYAL CROWN

4 Summary and Q&A

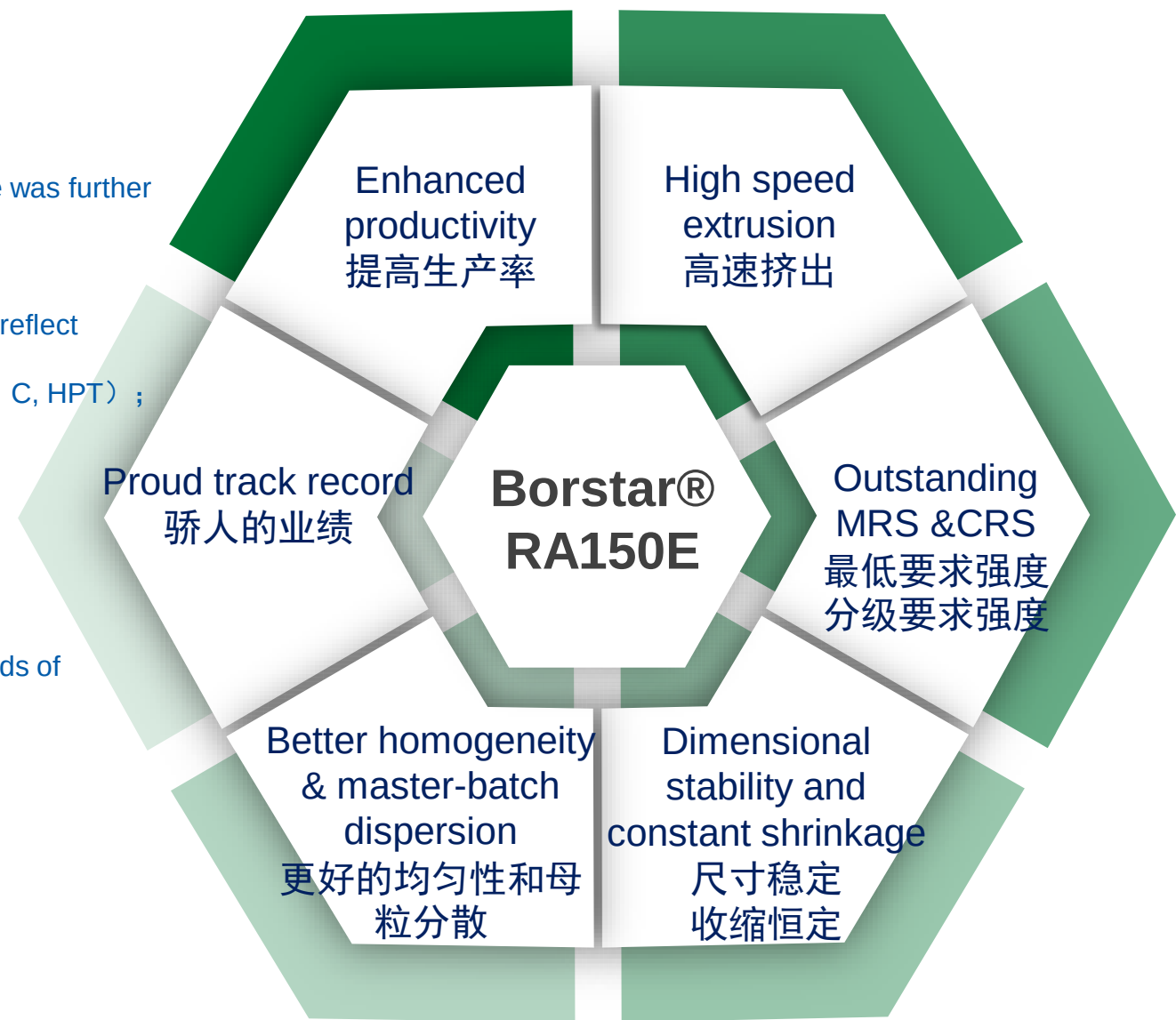
4 总结与Q&A



ROYAL CROWN

CONCLUSION 结论

- 1) Proud track record of over 30 years;
近三十年的傲人成绩;
- 2) MRS Reached 11.2Mpa, CRS increased to 3.8Mpa, and the safety performance was further enhanced;
安全性能进一步增强 (MRS 11.2 / CRS 3.8) ;
- 3) The real experimental data of different converters and different competitors fully reflect the Long-term effectiveness of RA150E;
不同管厂、不同竞争对手的第一手对比数据, 充分体现了RA150E的长效性 (95° C, HPT) ;
- 4) Unique BNT resulting in stable shrinkage & more dispersion of pigments;
独特的BNT成核技术, 带来稳定收缩和颜料更分散;
- 5) Higher production efficiency and lower energy consumption;
效率更高 (+6%), 能耗更低 (-2%) ;
- 6) Complete reporting and certification documents to better cover the different needs of domestic and export markets;
完备的报告和认证文件 (≥6) , 更好覆盖国内和出口市场的不同需求;
- 7) Meet different application scenarios;
满足不同的应用场景;
- 8) Low carbon environmental protection, recyclable;
低碳环保, 可回收;



THANKS



ROYAL CROWN