



Taking PU waterborne: How to address the sustainability challenges of PU synthetics – a key material in our industry

水性PU，如何应对PU合成革可持续性的挑战——我们行业中的重要材料

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Today 今日议题



- Introduction to Covestro
科思创的介绍
- Current situation in PU
synthetics market
PU合成革市场的现状
- New products and services
新产品和服务





BAYER MATERIALSCIENCE HAS A NEW IDENTITY: COVESTRO.

拜耳材料科技有一个新的身份：
科思创



Covestro 科思创

- Bayer MaterialScience is now Covestro
拜耳材料科技现已改名科思创
- Covestro is independent of Bayer since September 1, 2015
科思创于2015年9月1日起独立于拜耳
- A pure play polymers producer, one of the leading polymer companies in the world with a rich heritage of invention
一个纯粹的聚合物生产商，一个世界领先的聚合物公司拥有继承了众多的发明



OUR VISION TO MAKE THE WORLD A BRIGHTER PLACE.

我们的愿景
使世界更加美好



Our New Values 我们的新的价值观

Curious 求新若渴

Courageous 勇往直前

Colorful 多姿多彩

日常生活中用到的产品创新

Innovating for products used in daily life



- Leading manufacturer of high-tech polymer materials with focus on innovating for products used in daily life
创新的高性能聚合物材料大量应用在日常生活中
- Main areas of business in
主要业务领域
 - Automotive 汽车业
 - Construction 建筑业
 - Electronics 电子行业

Unlimited design possibilities and durability

不受限制的设计可行性和耐用性

PU synthetics for fashion and sport

PU合成革用于时尚和运动鞋类



7 billion
pairs of fashion
shoes

70亿双时尚鞋子



2 billion
bags

20亿个包包



1 billion
fashion
garments

10亿件流行服饰



1 billion
pairs of sports
shoes

10亿双运动鞋

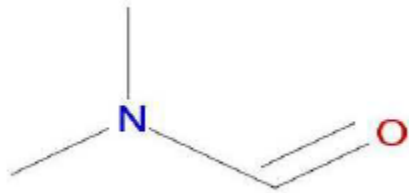


**99% OF PU SYNTHETIC
FACTORIES STILL USE DMF AS
THE PROCESS SOLVENT**

99%的PU合成革还是溶剂型的

DMF is a “Substance of Very High Concern”

DMF是一个 “受到高度关注的物质”



N, N – dimethylformamide, or DMFA

- Organic solvent used in wet processing “coagulation” of PU 在湿法 “凝聚” 过程中用到的有机溶剂
- For manufacture of PU synthetic materials and for outdoor fabrics 制作PU合成革的材料，也是户外纺织品的材料
- DMF classified as SVHC due to its classification as CMR – Toxic to Reproduction (Repr. 1B) 由于DMF分类于CMR，所以DMF被分为SVHC，在生产过程中的有毒品
- DMF currently in process of European Chemicals Agency “REACH” DMF已被列入欧洲化学品 “REACH” 限用清单

➤ DMF of high concern due to risk assessment

Can DMF be replaced with another solvent?

DMF是否可以被另外一种溶剂所替代？



- A basic discussion is ongoing at commission level on the procedure of **all polar aprotic solvents**
一个基本的关于极性惰性溶剂寄售模式正在讨论进行
- These include **DMAC, NMP, EDC and Diglyme**
这些溶剂包括 **DMAC, NMP, EDC 和 Diglyme**

- ▶ “Regrettable substitutions” must be avoided
必须要避免那些存在其他隐患的替代品
- ▶ A new kind of chemistry is the more likely solution
新化学材料是更有可能的解决方案

Waterborne PU addresses the sustainability challenges of standard material

水性PU应对可持续性的挑战



Sustainability Benefits

可持续性的优势



The PU is delivered and can be processed **without DMF**, with no solvents at all.

产品及生产过程中不使用DMF，不含任何溶剂

Three principal benefits: **三大主要优势**：

- Safer working environment – Elimination of workplace exposure hazard
更安全的工作环境 — 减少工作场所中暴露的有害物质
- Less pollution - Elimination of pollution risk to air, water, solid waste
更少的污染 — 减少对于空气，水和固态废弃物污染的风险
- Efficient - Can be processed with 95% less water and 50% less energy*
更有效利用资源 — 生产过程中节约95%的用水和50% 的能源



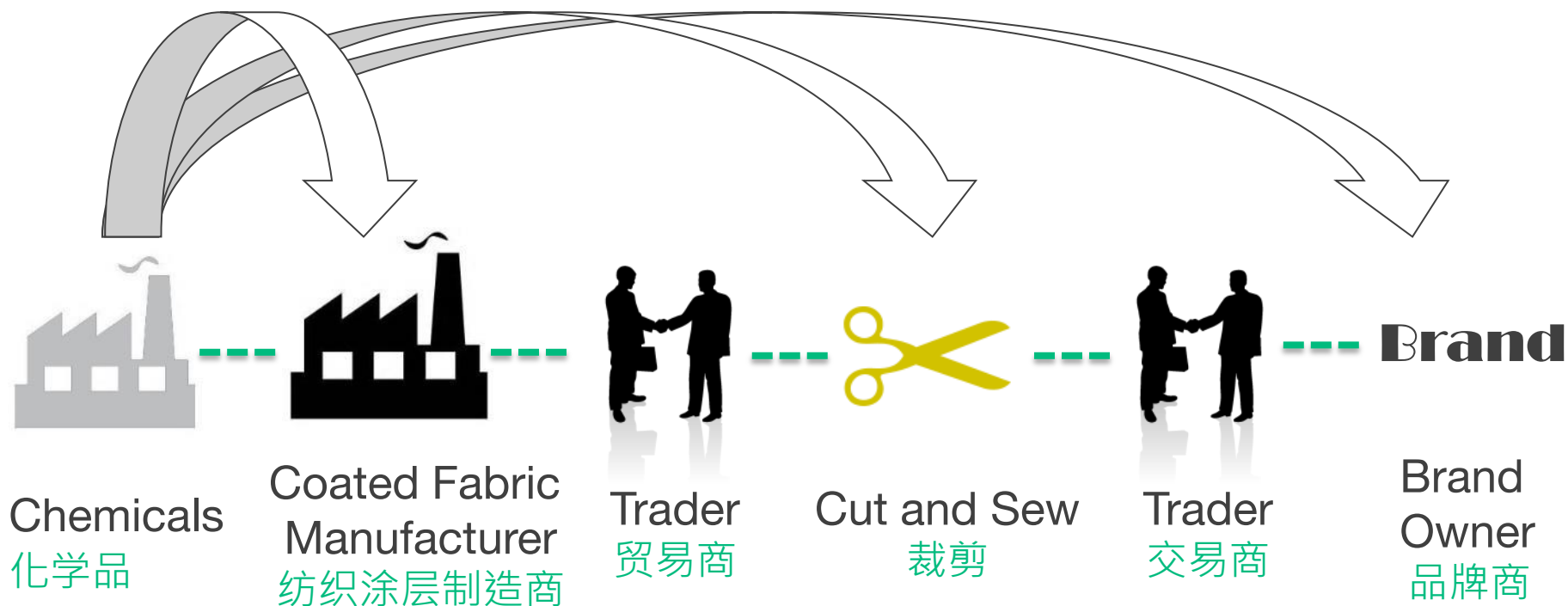
UPDATES

更新

Covestro new way of collaboration scales new materials faster



科思创倡导的新的协作方式促进新材料发展更快



The INSQIN Bag SS 2015

INSQIN做的包SS2015 版



DMF phase out firmly on the industry agenda

DMF的禁用已经被列入行业日程



- DMF has been included on the “Research List” of the Zero Discharge of Hazardous Chemicals (ZDHC)

ZDHC 已经把 DMF列在“调研清单”上，寻找替代品

Manufacturing Restricted Substances List (MRSL) of ZDHC
ZDHC列出的材料限制物质清单



Chemical innovation to reach the softest hand feel

化学品质创新来达到最柔软的手感



Garment PU that retains its softness even at low temperatures

PU 服装革甚至在低温时包含柔软性

- New PU product in the INSQIN family
在INSQIN家族中的新的PU产品
- Forms a soft and flexible bond between fabric and PU layers
在纺织品和PU涂层中间形成一种柔软灵活的链接
- PU synthetic remains very soft and flexible at low temperatures
PU合成革在低温下仍是非常柔软并耐折

Innovation to meet the highest performance

创新面对更高的性能要求



High peeling strength coating system for PU synthetics

高剥离强度的水性合成革方案

- Material enabled by new PU product in the INSQIN family
INSQIN产品系列的新成员
- Coating reaches >3.5 kg/cm wet
湿剥离强度达到3.5 kg/cm 以上

Waterborne PU dipped microfiber for backer material and PU suede-synthetic

水性PU含浸超纤和绒面革

- High softness & body
手感柔软，丰满
- Mechanical strength
物性优异



创新来降低成本

Innovation to reduce cost



Innovation plan in place to reduce cost

- Waterborne PU chemistry more expensive than solvent-based
水性PU化学品比溶剂型成本更高
- Role of innovation to meet cost targets
对成本的改善也是创新的目标
- Product innovation (PU) will enable process innovation (synthetics manufacture)
PU产品创新将使合成革制造加工工艺创新
- “Economies of experience” at the manufacturers will also develop
经济体验在制造业也会得到发展



Partner Manufacturer Program gathers momentum

制造商合作伙伴计划获得动力



- INSQIN Partner facilities and production audited by third party testing house
INSQIN 合作伙伴认证有第三方检测机构验厂审核



- ▶ Helping brand owners find reputable manufacturers of sustainable materials

帮助品牌商寻找可靠的有能力生产环保可持续发展材料的制造商

First Partner Manufacturer signed and further signings expected before end of 2015



第一个合作伙伴已签约，2015年底前还会再签几家



- Duksung Co. Ltd, leading producer of synthetics for the sports industry as the inaugural partner
德成革厂作为运动鞋革的领导者，成为第一家签约合作伙伴

- Considerable interest from the industry and observers
我们的合作供应商计划受到行业的高度重视

- Talks underway to sign two major supplier to the fashion footwear industry before end of 2015
年底前将签约另外两家时尚鞋革厂

Impranil® eco – First product of its class with high renewable carbon content



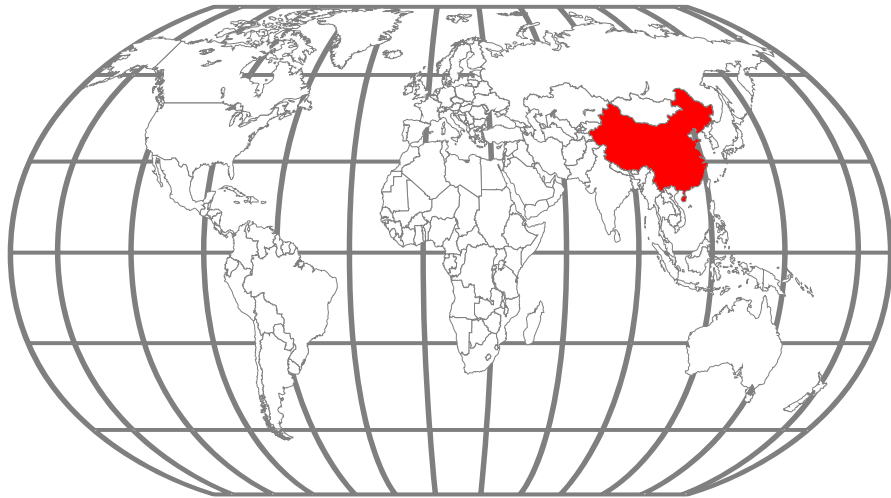
Impranil® eco 生物基PU可用于鞋面革



- **Bio-based and significantly improved carbon footprint cradle-to-gate in comparison to standard products**
和传统材料比较，生物基材料可以降低碳足迹
- **Not in direct competition with the food chain**
不和食物链直接竞争
- **Performance matches existing products and the bio-based versions can be dropped in directly without reformulation**
性能和现有产品相当，可直接使用无需重新配方

Manufacturing industry beginning to invest in capacity –will move fast when demand comes

制造业开始产能投资,一旦需求出现将会快速发展



- 90% of production ex China
90%产品来自于中国
- ca. 500 producers, 1500 lines, Zhejiang, Fujian, Jiangsu & Guangdong
500个生产商, 1500个生产线, 浙江, 福建, 江苏和广东主要省市
- Installed capacity 6 billion m, production 4 billion m
安装产能 60 亿米, 产量40 亿米
- Waterborne capacity currently 20 mio m
当前水性产能 2 千万
- More investments happening in 2015
在2015年更多投资正在进行

➤ Investment will be much faster with increasing interest
随着兴趣加强, 投资将会更快

Recommendations for the industry to achieve phase-out

行业推荐来逐步淘汰



- Chemical and manufacturing industry must stay the course with product innovation
化学制作工业必须 与产品创新同步
- Brand owners make your aspirations public!
品牌商把观念告知于公众
- Don't focus on RSL limits – it might be the opposite of sustainable.
不停留在RSL的限制上- 这可能和可持续性相悖的
- Embrace multi-stakeholder developments and treat them as developments
吸引多重投资家发展并把他们当成发展家
- Start small with commercialization – but start!
开始少量商业化 – 只是开始



Thanks for your attention

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