

英威达 中国 新机遇,新发展

INVISTA:
New growth
opportunities for China



企业简介

英威达是全球最大的化学中间体，聚合物和纤维的综合生产商之一。

英威达是美国科氏工业集团的全资子公司。科氏工业集团是全球最大的私人企业之一，**年收入估计高达1,000亿美元***。

科氏工业集团业务多元化，涉及炼油、化学品、生物燃料、林业和消费品、化肥、聚合物和纤维、工艺和污染控制设备和技术、电子、信息系统、商品贸易、矿物、能源、玻璃、牧场和投资等领域。

科氏工业集团目前在中国拥有**12家生产基地**以及设计、技术和销售办事处，拥有约**2万名员工**。

英威达在中国的业务包括先进制造基地、地区总部、研发和国际贸易。

仅在过去五年，英威达在上海化学工业园区的投资就超过40亿人民币（6亿美元），包括年产21.5万吨的己二胺生产基地和年产15万吨的尼龙6,6聚合物生产基地。

INVISTA is one of the world's largest integrated producers of chemical intermediates, polymers and fibers.

INVISTA is a wholly owned subsidiary of Koch Industries, which is one of the world's largest privately held companies, with estimated annual revenues as high as \$100 billion.*

Koch Industries owns a diverse group of companies involved in refining, chemicals, biofuels, forest and consumer products, fertilizers, polymers and fibers, process and pollution control equipment and technologies, electronics, information systems, commodity trading, minerals, energy, glass, ranching and investment.

Koch companies employ roughly 20,000 people in China at 12 manufacturing facilities and other design, technical and sales offices across the country.

INVISTA's presence in China includes advanced manufacturing facilities, a regional headquarters, R&D and international trading.

Over the past five years, INVISTA has invested more than \$600mm in two new manufacturing facilities in the Shanghai Chemical Industry Park (SCIP). The facilities include a 215,000-ton HMD plant and a 150,000-ton nylon 6,6 polymer plant.

*根据《福布斯》杂志的估计。

图为英威达位于上海化学工业区的己二胺生产基地

* According to Forbes.



INVISTA's HMD plant in the Shanghai Chemical Industry Park

己二腈 (ADN) 项目

70
亿元

近五年来，英威达在全球尼龙6,6价值链上的投资超过人民币70亿元（10亿美元）。

70
亿元

英威达最近承诺在中国再投资70亿元人民币（10亿美元）建设ADN项目。

80
年

英威达的中间体业务拥有近80年的尼龙6,6生产经验以及超过45年生产基于丁二烯的专有技术的ADN产品的经验。

约3
亿元

英威达最先进的ADN技术是近四年来在欧洲和美洲投资约3亿人民币（4,000万美元）进行研发的结晶。

立足中国，服务中国

英威达一直在关注和预测全球尼龙6,6需求的增长趋势，并相应地规划其产能投资。

据英威达估计，未来五年中国可能成为全球最大的尼龙市场，立足中国，服务中国来激发市场的全部潜能至关重要。

英威达最近宣布计划在2022年前在中国建成世界级的ADN生产基地。人民币70亿元（10亿美元）的投资将为中国带来先进的、节能的技术，以满足当地对ADN的强劲需求。ADN是用于生产尼龙6,6的中间体化学品。

INVISTA's ADN Project

1
BILLION

INVISTA has invested more than 1 billion USD in the global nylon 6,6 value chain in the past five years.

1
BILLION

INVISTA has recently announced an investment of another 1 billion USD in China.

80
YEARS

INVISTA's Intermediates business has nearly 80 years of experience producing nylon 6,6 and more than 45 years of experience producing its proprietary, butadiene-based ADN.

40
MILLION

INVISTA's most advanced ADN technology was a culmination of more than USD 40 million in research and development spanning four years on two continents, leveraging its long history of innovation.

In China, For China

INVISTA has been watching and forecasting the increases in nylon 6,6 demand over time and planning its capacity investments accordingly.

By INVISTA estimates, China could be the world's largest market for nylon in the next five years, and the company believes it is important to serve China from China to realize the full potential of the market.

INVISTA recently announced its plans to build a world-scale adiponitrile (ADN) facility in China by 2022. The RMB 7 billion (USD 1 billion) investment would bring advanced, energy-efficient technology to China to satisfy the strong, local demand for ADN, an intermediate chemical used in the production of nylon 6,6.

项目优势，惠与中国

先进材料

尼龙6,6产品可用于汽车工业，电气和电子工业以及许多其他消费者产品。通过应用轻质、省油又持久耐用的部件，促进人民生活质量提高。

完整的尼龙6,6价值链

英威达在中国的ADN生产基地将整合中国已有的己二胺（HMD）和聚合物生产，在中国形成完整的尼龙6,6价值链。

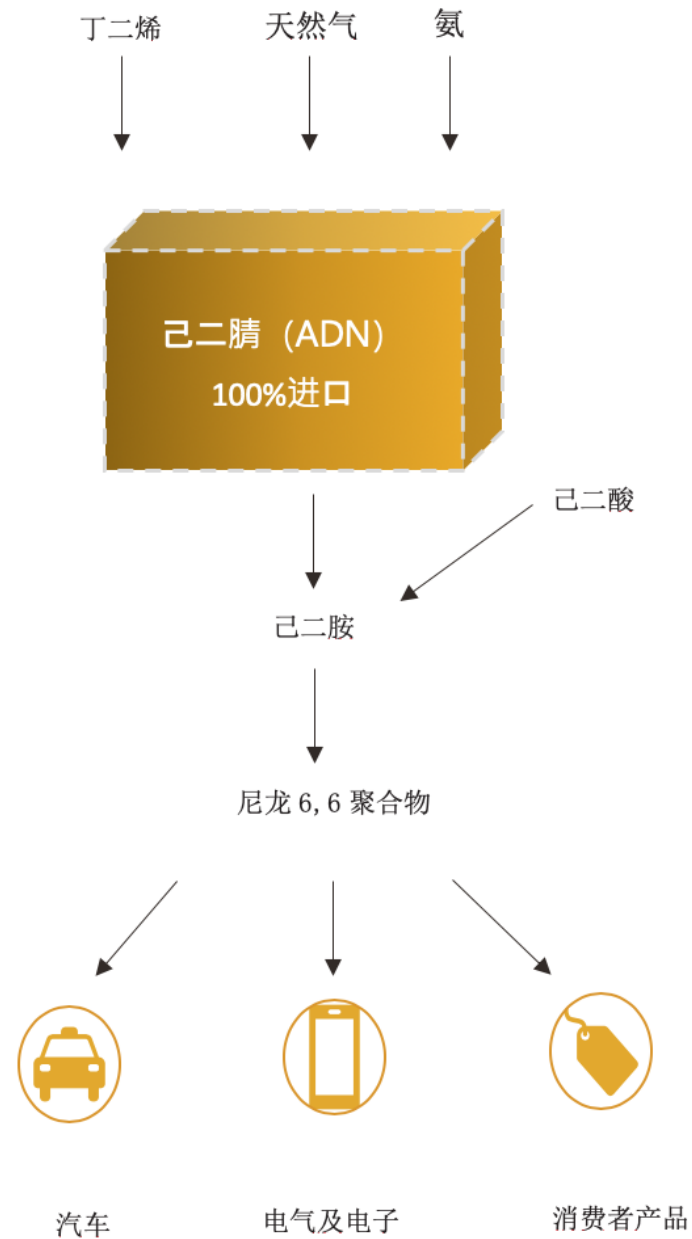
将ADN技术带来中国，将减少中国对进口的依赖，填补国内ADN需求空白：

- 2017年，据估计中国消耗了30万吨ADN下游产品（HMD和尼龙6,6聚合物），用于生产尼龙聚合物、纤维和聚氨酯。
- 然而，由于缺乏国内生产，100%的ADN（这些产品的关键成分材料）必须依赖进口。
- 英威达计划的ADN生产基地将至少年产40万吨ADN。

创新

- 用本地生产的产品替换这些高价值的进口产品将推动当地相关产品和终端应用的创新，促进经济发展。

尼龙 6,6 价值链



INVISTA ADN project: Benefits to the China economy

Advanced Materials

Nylon 6,6 products can be used for the automobile industry, electrical & electronic industry and many other consumer products. Together, these contribute to the overall quality of life by enabling designs that combine lightweight, fuel-efficient components with long-lasting durability.

Self-sufficiency in Nylon 6,6

INVISTA's ADN facility in China will fully integrate existing HMD and polymer production to make a complete nylon 6,6 value chain in China.

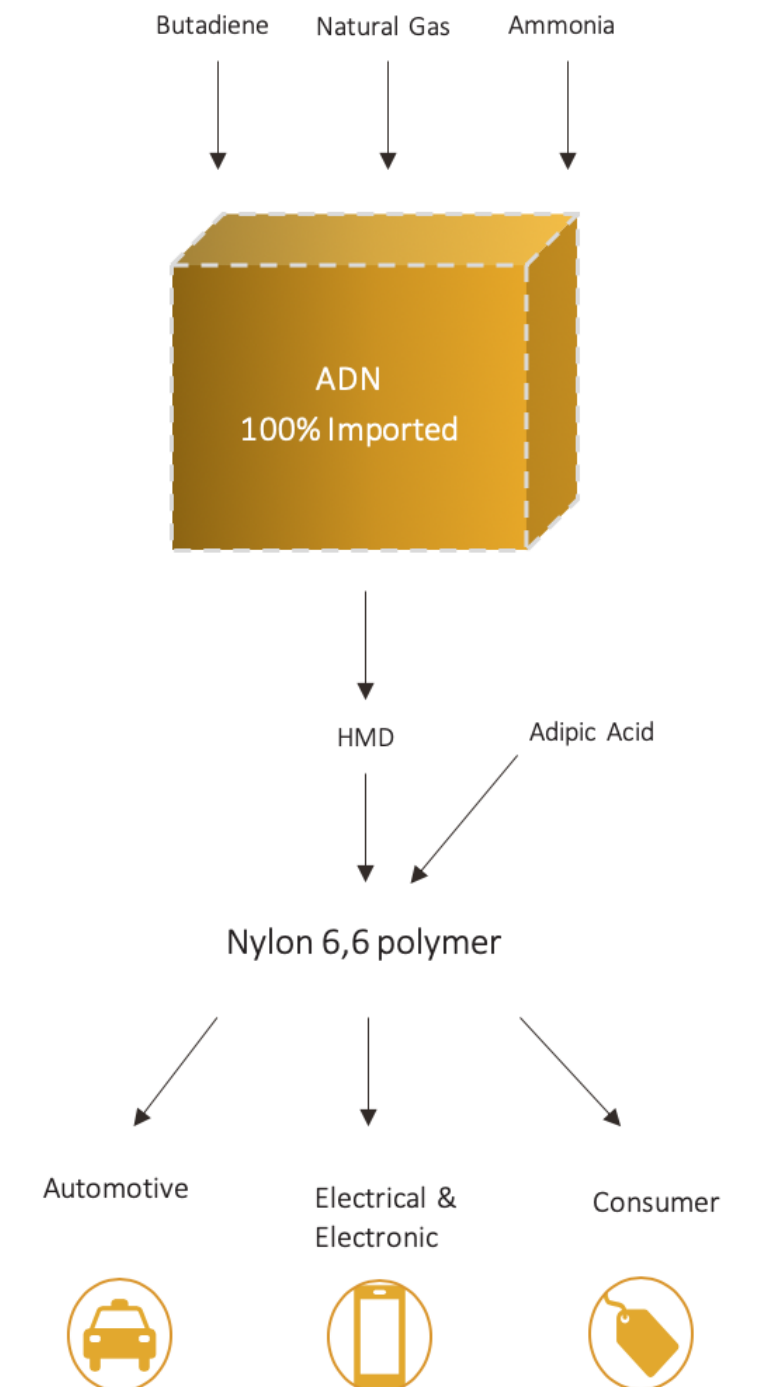
Bringing ADN technology to China will reduce dependence on imports and fill the gap in China's need for domestic supply:

- In 2017, an estimated 300kta of ADN downstream products (HMD and nylon 6,6 polymer) were consumed in China to produce nylon polymers, fibers or polyurethanes.
- However, 100% of ADN-the critical ingredient material for these products-must be imported due to a lack of domestic production.
- INVISTA's planned ADN facility will have a minimum capacity of 400kta.

Innovation

Domestic ADN supply will enhance China's economy, boosting local production and innovation in end-user applications.

Nylon 6,6 value chain



项目优势，惠与中国

响应十三五规划

引入英威达的世界级技术有助于推进中国实现十三五规划。通过氢氰化使用丁二烯生产ADN的技术被列为《石化和化学工业发展规划(2016-2020年)》技术创新发展的重点领域及方向，同时也被列入中国2017年鼓励类外商投资产业指导目录。

环境保护优势

英威达的ADN技术与中国高要求的环境目标相一致，例如绿色产业战略：与现有其他技术相比，英威达最新的ADN技术有着提高产品产量，降低能耗，减少温室气体排放，提高工艺稳定性并降低资本密集度等诸多优势。

INVISTA ADN project: Benefits to the China economy

China's Five-year Plan

Bringing INVISTA's world-class technology helps China meet its 13th five-year plan. ADN production using butadiene through hydrocyanation is listed as a focus area and direction for development in technological innovation in the Five-Year Plan (2016-2020) for the Development of the Petrochemical and Chemicals Industry. The technology is also listed as "encouraged" in the 2017 Catalogue for the Guidance of Foreign Investment Industries in China.

Environmental Benefits

INVISTA's ADN technology is in harmony with China's ambitious environmental goals, such as its Green Growth industrial strategy:

INVISTA's latest ADN technology brings improved product yields, reduced energy consumption, lower greenhouse gas emissions, enhanced process stability and reduced capital intensity, compared to existing technologies.



与其他技术相比，英威达的ADN技术产生的温室气体排放量减少了一半*。



与其他技术相比，英威达的ADN技术单位产品能耗降低40%*。



INVISTA's ADN technology results in **half the greenhouse gas emissions** compared to the competing technology.*



INVISTA's ADN technology uses **40% less energy** per unit of production compared to the competing technology.*

在制造成本和商业规模方面，英威达专有的基于丁二烯的ADN技术与基于丙烯的技术相比具有显著的优势。因此，世界上超过70%的ADN产能都采用了英威达的专有技术**。

INVISTA's proprietary, butadiene-based ADN technologies are significantly advantaged versus the propylene-based technologies in terms of manufacturing cost and commercial scale. As a result of this significant competitive advantage, greater than 70 percent** of the world's existing ADN capacity employs INVISTA's proprietary technologies.

*基于2011/2012英威达内部关于丁二烯的ADN技术的相关数据与2013年SRI报告中基于丙烯的ADN技术的数据进行比较。为了确保分析方法一致，比较中假设供应给任一技术的所有燃料和电力都是基于碳的（例如，煤，石油，天然气）

**根据PCI尼龙黄皮书的2015年产能报告

*Based on 2013 cradle-to-gate comparison by INVISTA using 2011/2012 INVISTA internal data on its butadiene-based ADN technology and data from an SRI report for the propylene-based ADN technology. To assure consistent treatment in the analysis, comparisons assume all fuel and electricity supplied to either technology is carbon based (e.g., coal, oil, natural gas).

**According to a 2015 capacity report from the PCI Nylon Yellowbook

项目优势，惠与中国

安全生产优势

英威达致力于在所有生产基地创造和保持安全的工作环境，在全球多个生产基地拥有卓越的环境、健康和安全的记录。这是通过建立信任文化，提高员工敬业度，加强个人对环境、健康和安全的绩效的责任制，鼓励有效的挑战流程以及保持对环境、健康和安全的卓越愿景的承诺来实现的。

促进经济

引进外资

英威达一直以来致力于在中国的长期发展，推动中国经济和市场。ADN项目将是美国公司在中国投资实施其专有技术的重要例证。

促进经济

英威达的ADN项目，不仅仅是超过人民币70亿元的投资，而且通过与当地原材料供应商、工程公司、律师事务所、建筑公司等合作，共同推动这些行业的发展，也提供了更多相关的就业机会。

人才发展

英威达ADN项目将有助于培养本地人才，特别是那些兼有化学技术、运营技能和业务管理经验的复合型人才。

INVISTA ADN project: Benefits to the China economy

Safety Performance

INVISTA has a proven record of environmental health and safety excellence at its multiple manufacturing sites around the globe. The company has a demonstrated commitment to developing and sustaining a safe work environment at all of its locations. This is achieved by creating a culture of trust, increasing employee engagement and individual ownership for EHS performance, encouraging an effective challenge process, and maintaining a commitment to the vision for EHS excellence.

Economic Development

Foreign investment

INVISTA has worked collaboratively with China in the past to strengthen China's local economy and marketplace. The ADN investment would be another significant example of U.S. firms installing their proprietary technologies in China.

Local economy development

By contracting with local utilities providers and raw materials suppliers, engineering firms, legal firms, construction companies and more, INVISTA's ADN investment goes beyond the USD 1 billion chemical intermediates facility. It supports local jobs and enriches the local community many times over.

Talent development

This ADN project will help to cultivate local talent, particularly those with experience in complex chemical technologies, operations skills and business management.





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