



ADMER™ ADHESIVE RESIN FOR PIPE COATING SOLUTIONS





THE MITSUI CHEMICALS GROUP AIMS TO REALIZE DREAMS THROUGH INNOVATION AND CHEMISTRY.

Our corporate mission at Mitsui Chemicals is “to contribute broadly to society by providing high-quality products and services to customers through innovations and creation of materials, while keeping in harmony with the global environment.”

And to bring this about, we aspire to be a “Chemistry, Innovation, Dreams” driven Mitsui Chemicals Group which is constantly pursuing innovation and materializing dreams with the wonder of chemistry, and are making an all-out and company wide effort to achieve this end.

Any corporation is able to grow only if its business activities are based on the attitude of contributing broadly to society. The Mitsui Chemicals Group aims to grow vigorously into the future and is diligently working toward that goal on a daily basis.



KENJI FUJIYOSHI

President & CEO

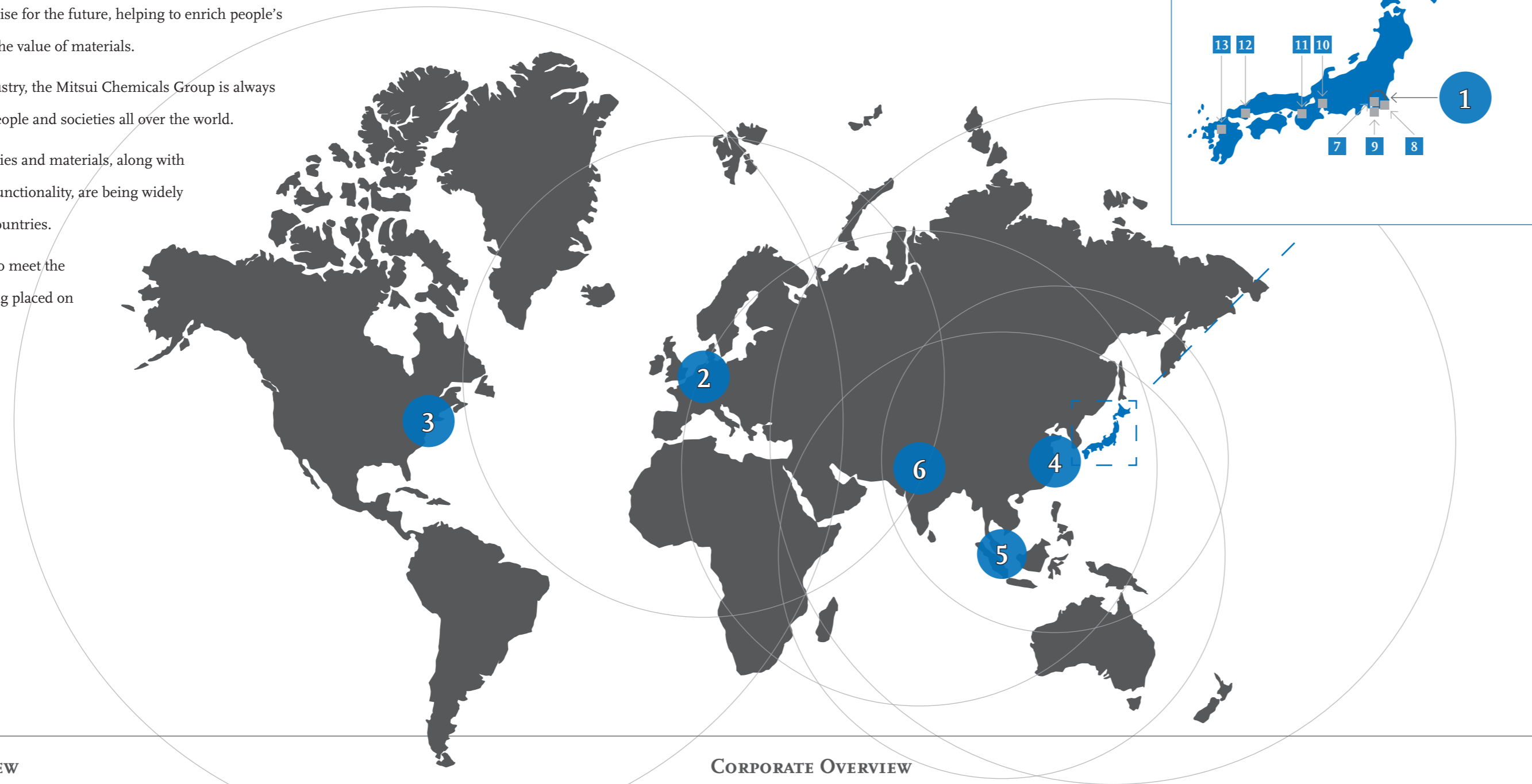
CHEMISTRY – FULL OF PROMISE FOR THE FUTURE

Chemistry is full of promise for the future, helping to enrich people's daily lives by increasing the value of materials.

As a member of this industry, the Mitsui Chemicals Group is always looking at the needs of people and societies all over the world.

Our innovative technologies and materials, along with products that offer new functionality, are being widely used in many different countries.

We are doing all we can to meet the expectations that are being placed on the chemical industry.



BUSINESS OVERVIEW

CORPORATE OVERVIEW

BASIC CHEMICALS

Petrochemical Feedstocks, Industrial Chemicals, Polyolefins, PTA & PET resins, Phenols and many others.

ADVANCED CHEMICALS

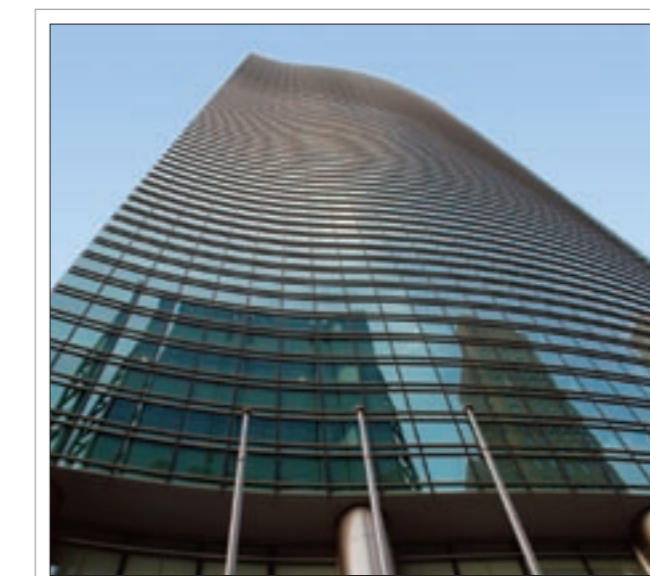
Polyolefin Catalysts, Medical Materials, Dye Materials, Chemical Products, Pesticides & Fungicides and cetera.

PERFORMANCE MATERIALS

Specialty Polymers, e.g. Adhesives, Elastomers, Copolymers; Epoxy Resins, Lubricants, Nonwovens and many others.

- 1933 Founding of Toyo Koatsu Industries, Inc.
- 1940 Established Mitsui Chemical Industry Co., Ltd.
- 1955 Founding of Mitsui Petrochemical Industries, Ltd.
- 1968 Mitsui Toatsu Chemicals, Inc. was launched
- 1997 Mitsui Chemicals, Inc. was founded

- Paid-in Capital: 103,226 million YEN
- Employees: 12,814 (as of September 30, 2008)
- Listed at the Tokyo Stock Exchange, 1st Section
- Total Number of Shares: 792,020,076 (as of September 30, 2008)



- 1 Mitsui Chemicals, Inc. Head Office Tokyo (Japan)
- 2 Mitsui Chemicals Europe GmbH Dusseldorf (Germany)
- 3 Mitsui Chemicals America, Inc. New York (United States of America)
- 4 Mitsui Chemicals (Shanghai) CO., LTD. Shanghai (China)
- 5 Mitsui Elastomers Singapore Pte Ltd. Singapore
- 6 Mitsui Chemicals India PVT. LTD. New Delhi (India)
- 7 Ichihara Works
- 8 Mobara Branch Factory
- 9 Sodegaura, Global R&D Center
- 10 Nagoya Works
- 11 Osaka Works
- 12 Iwakuni-Ohtake Works
- 13 Omuta Works

The Mitsui Chemicals Group has received various awards for its R&D achievements from academic societies, governments and other organizations. This is a selection out of more than 40 awards since 1997:

- 2007**
The SRJ Technical Development Award (The Society of Rheology, Japan)
Improvement of Polymer Processability by Addition of the Metallocene Catalyzed Low Molecular Weight Polyethylene
- 2006**
SPSJ Award for Outstanding Achievement in Polymer Science and Technology (The Society of Polymer Science, Japan)
Development and Industrialization of Highly Active Catalysts for Olefin Polymerization
- 2005**
The Award of the Society of Polymer Science, Japan
Discovery and Development of Imine-Based Group 4 Metal Catalysts for the Creation of New Polyolefinic Materials
- 2004**
The Chemical Society of Japan Award for Creative Work
Development of Post-Metallocene Catalysts and their Application to Novel Polymers
- 2003**
The Chemical Society of Japan Award for Technical Development
Development of LLDPE and EL Manufacturing Technologies and Synthesis of New Functionalized Polyolefins with Designed Metallocene Catalysts
- 2002**
The Japan Chemical Industry Association Technology Award (Overall Award)
Industrial Application of Gas-Phase LLDPE Using Designed Metallocene Catalyst
- 2001**
The Chemical Society of Japan Award for Young Chemist in Technical Development
Discovery of Super Active New Olefin Polymerization Catalysts

ADMER™ ADHESIVE RESIN

TOP QUALITY EXTRUDABLE & POWDER ADHESIVES

ADMER™ resins are anhydride grafted polyolefins, designed to create strong adhesion between conventional polyolefins and a variety of materials, such as metals, barrier resins and – especially in steel pipe coating systems – epoxy primers.

ADMER™ is used as tie layer in multilayer structures, such as coated steel pipes, plastic and aluminium pipes & panels and barrier food packagings.

ADMER™ is the globally leading extrudable adhesive in the automotive industry for the production of plastic fuel tanks and fuel lines.

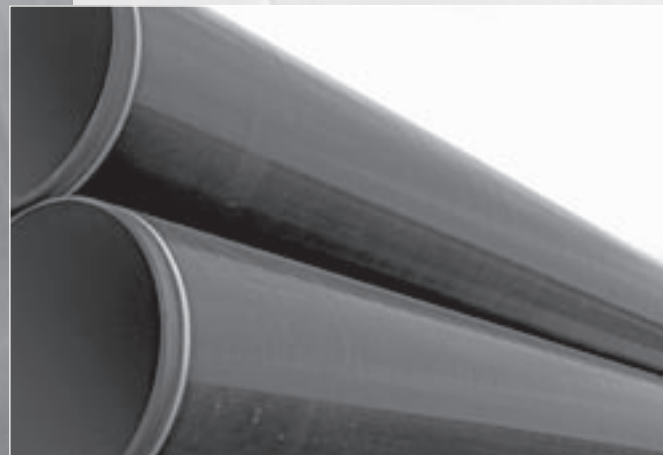
ADMER™ resins are also used as coupling agents, compatibilizers and impact modifiers in various types of composites.

ADMER™ adhesives are thermoplastics and can be as easily processed as any other polyolefin by (co-)extrusion or powder coating.

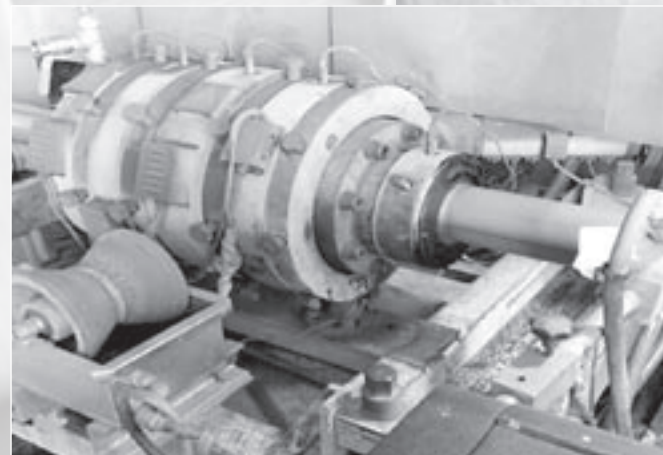
ADMER™ powder types are particularly used in metal coating applications and available in different particle sizes.

ADMER™ is famous for its excellent quality and is therefore the world's leading polyolefin-based adhesive.

Production sites all over the world assure a constant and convenient availability of our top quality adhesives.



THREE LAYER POLYETHYLENE COATED STEEL PIPES



PIPE COATING PROCESS WITH CIRCULAR DIE

EXPERIENCE & APPLICATIONS

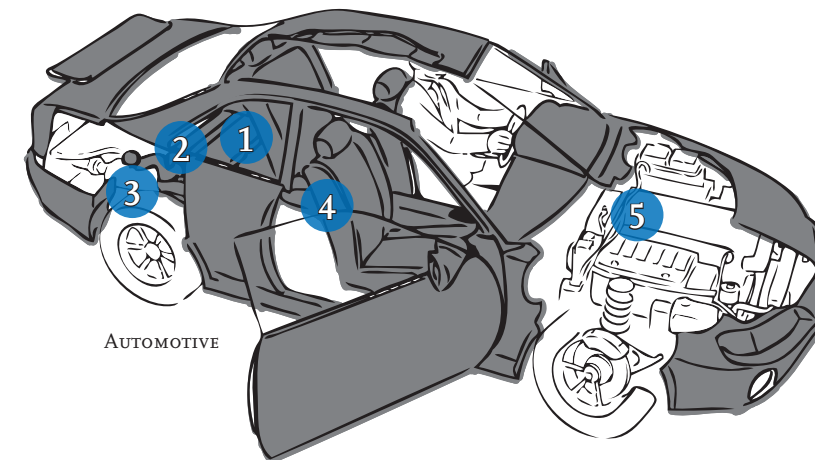
More than 30 years experience in adhesive technologies and an outstanding expertise in various industries make us a competent partner for your business.

ADMER™ resins for Europe, Middle East and Africa (EMEA) are produced in Germany and the Netherlands.

The production in the heart of Europe assures highest quality standards, which are also reflected by the following certificates:



- ISO 9001
- ISO/TS 16949
Quality Management System especially for the Automotive Sector
- ISO 14001
International Specification for Environmental Management Systems (EMS)

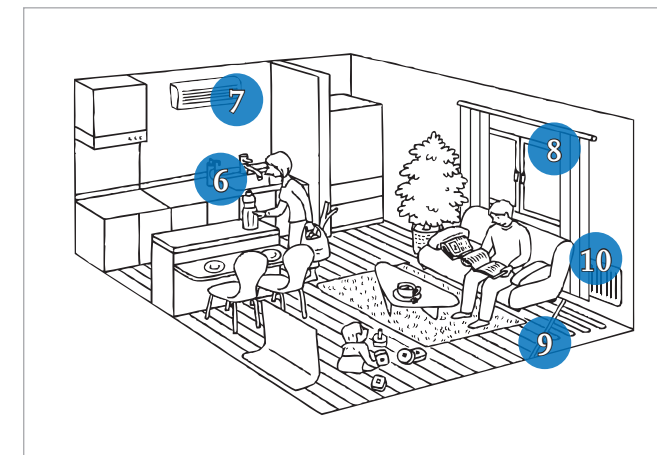


AUTOMOTIVE

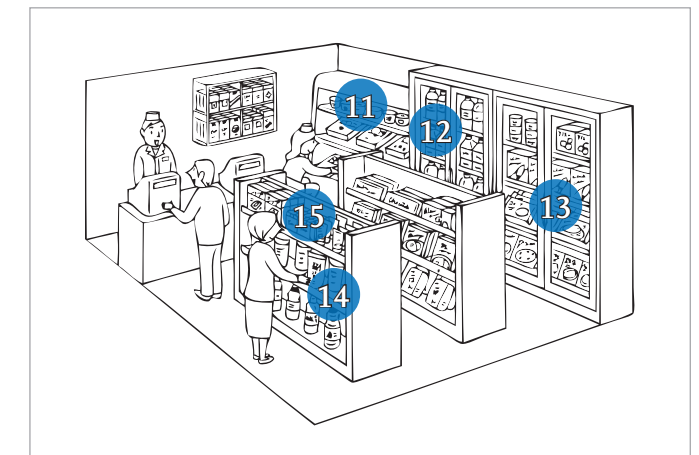
- 1 Plastic Fuel Tank
- 2 Tank Connector
- 3 Filler Pipe
- 4 Side Airbags
- 5 Fuel Lines

- 6 Pipes for Sanitary Installation
- 7 Pipes for Air Conditioners
- 8 Window Profiles, Glass Insulation
- 9 Pipes for Floor Heating
- 10 Pipes for Radiator Installation

- 11 Cups
- 12 Bottles
- 13 Trays
- 14 Films
- 15 Tubes



CONSTRUCTION



PACKAGING FOR FOOD, COSMETICS ETC.

THE STORY OF ADMER™ GOES BACK TO THE YEAR 1975

At that time, Mitsui Petrochemical Industries, Ltd. (Japan) developed a new type of extrudable adhesive by applying an innovative grafting technology. This adhesive was then successfully marketed in the whole world under the tradename ADMER™.

Over the years, the ADMER™ product line-up has been perfected continuously and brought Mitsui into a predominant position in many different markets and applications. One of the first success stories was the usage of ADMER™ in steel pipe coatings.



Beginning of the 1980's already, 3000 metric tons of ADMER™ NE058 and NE065, optimized for steel pipe coatings, have been supplied for natural gas pipeline projects in the Soviet Union (3-layer PE coating).

Since then, in three decades of experience and success in the pipeline coating sector, Mitsui (Petro)Chemicals has been supplying adhesives to many well-known companies particularly in Asia:

- Nippon Steel Corporation (Japan)
- Sumitomo Metal Industries, Ltd. (Japan)
- JFE Steel Corporation (Japan)
- Wanchi Steel Industrial Co. Ltd. (Taiwan)
- Kao Hsing Chang (KHC) Iron & Steel Corp. (Taiwan)
- Ace Pipe Corporation (Taiwan)
- Far East Pipe (Taiwan)
- Yieh Loong Co., Ltd. (Taiwan)

The most successful ADMER™ steel pipe coating grades supplied to the Asian markets are:

- ADMER™ NE058: Extrudable PE adhesive
- ADMER™ NE065: Extrudable PE adhesive
- ADMER™ NS101: Powder PE adhesive
- ADMER™ NR106: Powder PE adhesive
- ADMER™ QE060: Extrudable PP adhesive



EXEMPLARY COATING STRUCTURES WITH ADMER™

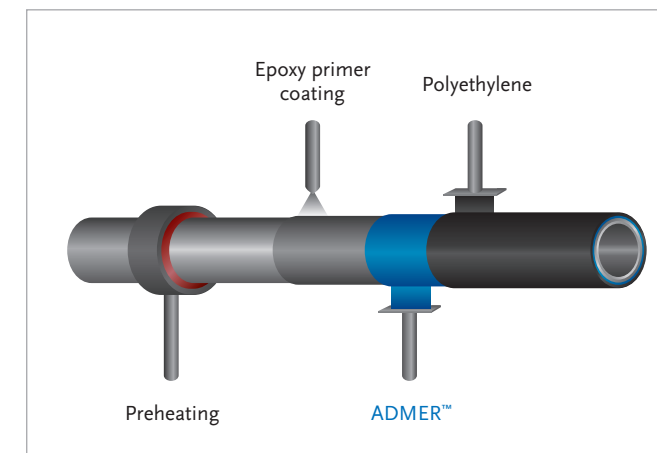
Main purpose of the steel pipe coatings is to protect the pipelines from corrosion and weather impacts and thus to assure a long operating time of the pipes.

THREE LAYER PE COATINGS (3LPE)

3LPE coatings for pipelines are particularly popular in Europe, Asia, Africa and South America. This coating system is more and more replacing the single layer FBE (fusion bonded epoxy) coatings, being still very much common in the US and Canada.

The 3LPE coating is a multilayer coating combining the different properties of three functional materials:

1. The epoxy primer is applied – mainly in powder form – onto the preheated steel pipe. It provides an effective barrier against oxygen and thus a long-term resistance against corrosion. At the same time, it provides strong adhesion to the steel.
2. The PE top coat, often high density polyethylene, provides a high level of mechanical protection.
3. ADMER™ PE adhesives create strong bonding between the top coat and the epoxy layer. They are compatible with any kind of commercially available epoxy primers and polyethylene top coats.



COATING PROCESS

THREE LAYER PP COATINGS (3LPP)

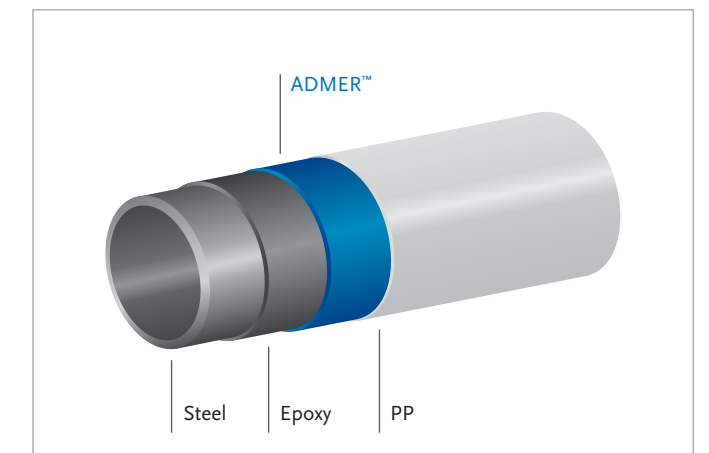
3LPP coatings still represent a niche market in the pipeline coating sector, though its popularity is constantly increasing.

Due to high temperature resistance and mechanical strength of polypropylene, this coating type is particularly suitable for applications where high service temperature and excellent mechanical protection are mandatory.

The structure of 3LPP coatings corresponds to that of 3LPE, combining an epoxy primer, a PP top coat and a PP adhesive.

Mitsui Chemicals is the globally leading producer of PP adhesives for various applications, offering the widest product range and the highest-performance materials.

ADMER™ PP adhesives are top-ranked throughout the world.



PRODUCT

ADMER™ TECHNICAL DATA SHEETS

For detailed information about our ADMER™ adhesive line-up for pipeline coatings please refer to the product data sheets on the right-hand side.

» WWW.ADMER.EU

» WWW.MITSUICHEM.COM

ADMER™ SERVICE PACK

We would like to support you in optimizing your coating process in terms of adhesion strength, line speed, layer distribution, and many other aspects.

Our technical consultants would be glad to accompany your evaluation of ADMER™ with advice and assistance.

Take advantage of this unique service!

The information contained in this brochure is, to the best knowledge, accurate and reliable, but all suggestions are made without warranty, either expressed or implied. The values relevant to properties or the like of the product stated herein were obtained using laboratory test specimen prepared in Mitsui Chemicals, Inc. Laboratories and are not to be used as production specifications, nor assumed to be identical to value obtained on the finished products manufactured by our customers. Nothing herein shall be construed as permission or as recommendation for uses that infringe valid patents or as extending license under valid patents. Because the conditions and methods of use on the part of our customers are beyond our control, Mitsui Chemicals Europe GmbH disclaims any liability incurred in connection with the use of our products.



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