

ADHESIVE RESIN

# ADMER<sup>TM</sup>



**Adhesive Resins for Packaging, Automotive,  
Agricultural, and Industrial Applications**



**Mitsui Chemicals**  
Group

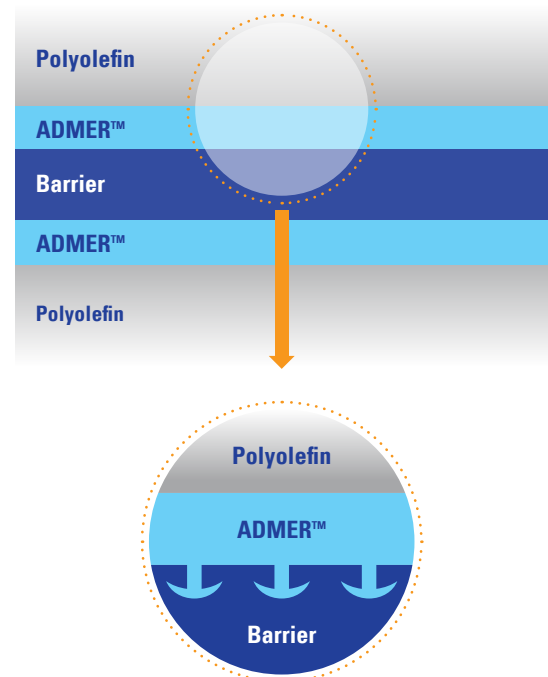
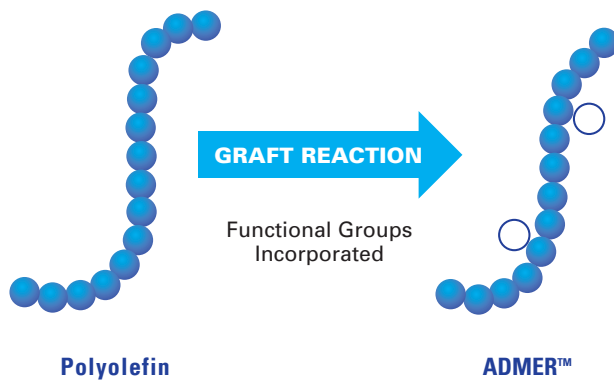


## ADMER™ Adhesive Resin Characteristics

ADMER™ Adhesive Resin is a modified polyolefin designed to bond polyolefins to ethylene vinyl alcohol copolymers (EVOH), polyamides, polyester (e.g. PET), ionomers, and a variety of metals. Available in pellet form, ADMER™ is used in coextrusion processes to produce multilayer bottles, films, pipes, sheets, tanks, and tubes. ADMER™ Adhesive Resin functions as a tie layer in complex multilayer structures that combine, for example, the gas barrier and moisture barrier properties of otherwise incompatible raw materials in packaging, automotive, and industrial applications.

ADMER™ Adhesive Resin is used in flexible packaging applications such as casings, pouches, tubes, and wraps. Rigid packaging applications include bottles, containers, cups, and trays. In addition, ADMER™ Adhesive Resin is used for extrusion coating to produce for instance, retortable packaging and coated aluminum for food packaging.

For automotive and industrial applications, ADMER™ Adhesive Resin is used where durable adhesion is required. In these applications ADMER™ Adhesive Resin offers superior performance not only as a tie layer for multilayer plastic fuel tanks (PFT), pipes, and automotive fuel line connectors, but also as a binder or coupling agent for fiber-reinforced plastics (FRPs).



## ADMER™ Packaging Applications

ADMER™ Adhesive Resin is used to create increasingly complex multilayer structures in both flexible and rigid food packaging applications. With the goal of prolonging shelf life and reducing food waste, packaging engineers must customize both gas and moisture vapor barrier properties of the package for the specific requirements of the food type. Furthermore, aromas and protective modified atmosphere should be kept inside of the packaging, whereupon the packaging itself should be lightweight, hard-wearing and attractive.

When there is no single raw material or monolayer solution which delivers the needed combination of barrier properties, multiple barrier resins must be combined in a multilayer structure. ADMER™ Adhesive Resin serves as the tie layer between these otherwise incompatible materials, making the high-performance package possible. ADMER™ Adhesive Resin complies with FDA 21 CFR 175.105 (Adhesives). Further information, individual FDA status letters, and the regulatory status for other regions are available for all ADMER™ grades upon request.



FLEXIBLE PACKAGING	RIGID PACKAGING	EXTRUSION COATING
Includes films, casings, pouches, tubes. Usual processing methods are: Co-extrusion blown and cast film, tube co-extrusion, and laminates.	Includes cups, trays, bottles, and containers. Usual processing methods are: Co-extrusion sheet processing and thermoforming, co-extrusion blow molding, and co-injection molding.	Covers coated paperboards like retortable carton-based packaging, as well as coated aluminum packaging.
• Fresh Meat	• Baby Food	• Retortable Carton-based Packaging
• Cheese	• Coffee Capsules	• Liquid Packaging Boards
• Fish	• Fresh Meats	• Pet Food Packaging
• Milk Pouch	• Convenience Food (microwave)	• Tube Laminates
• Sausages	• Dairy Products	• Lid Films
• Poultry	• Agrochemicals	
• Half-baked Bread	• Ketchup and Mayonnaise	
• Fresh Pasta	• Sauces	
• Coffee Pouch	• Medical Nutrition	
• Bag-in-Box for Drinks	• Sanitary Bottles	
• Paste/Sauce Sachet	• Fruits	
• Medical Nutrition		
• IV Bags		
• Cosmetics		
• Sanitary Goods		
• Aseptic Packaging		



Damien BOQUEL,  
Plastic Omnium Clean Energy Systems

## ADMER™ Automotive Applications

ADMER™ Adhesive Resin is used as a tie layer in multilayer plastic fuel systems. Available in pellet form, ADMER™ Adhesive Resin demonstrates outstanding long-term adhesion, toughness, and aging resistance, enabling fuel system suppliers and OEMs to deliver fuel components with low permeation and superior durability.

With deep technical expertise in polymer chemistry and a long-standing commitment to the automotive industry, Mitsui Chemicals America, Inc. works with automotive suppliers to develop improved multilayer plastic fuel systems to accommodate alternate fuels and advances in fuel system technologies.

Contemporary fuel systems depend upon the use of EVOH as a low-permeation barrier material. By chemical reaction to the EVOH, ADMER™ Adhesive Resin enables the cost-

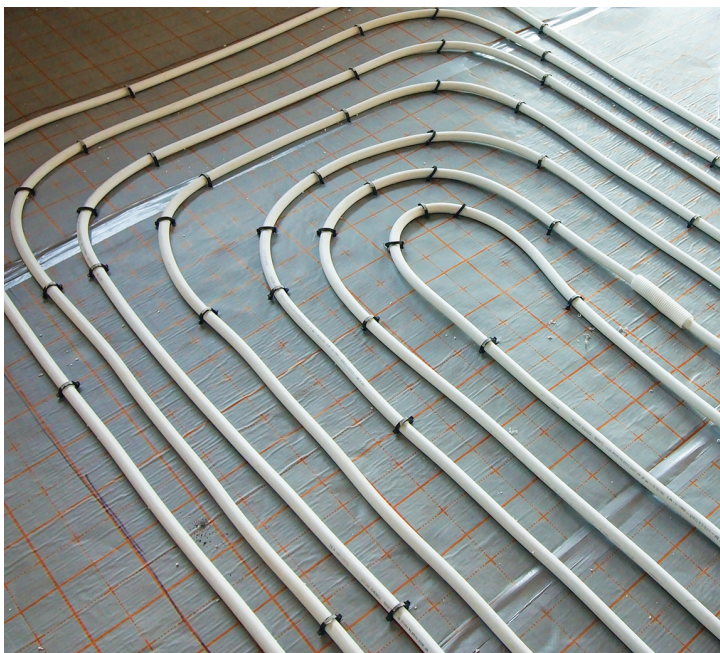
effective production of multilayer plastic fuel tanks. These coextruded tanks deliver consistent permeation resistance to evaporative emissions.

ADMER™ Adhesive Resin is available globally, from production sites located strategically around the world. Fuel system suppliers and OEMs rely on globally sourced ADMER™ Adhesive Resin from Mitsui Chemicals Inc.

Additional applications for ADMER™ include:

- Small fuel tanks for boats
- Fuel tanks for lawn and garden equipment
- Fuel lines and valves
- Small fuel containers (Jerry Cans)
- Filler pipes
- Coolant lines





*“ADMER™ Adhesive Resin functions as a tie layer in complex multilayer structures that combine, incompatible raw materials in packaging, automotive, and industrial applications.”*

## ADMER™ Agricultural, Construction, and Industrial Applications

ADMER™ Adhesive Resin is used as a tie layer in many coextruded agricultural films, and in construction and industrial applications.

Typical agricultural applications for ADMER™ Adhesive Resin include:

- Totally impermeable film (TIF) for field fumigation
- Mulch films
- Silage films
- Hermetic bags for dry agricultural commodities

Typical construction applications for ADMER™ Adhesive Resin include:

- Floor and wall heating pipes
- Aluminum panels
- Geomembranes
- Roofing membranes

Typical industrial applications for ADMER™ include:

- Multilayer oil and gas pipe
- Radiant heat pipes
- Pipe coating
- Industrial bulk containers (IBCs)



## ADMER™ Handling Recommendations



### STORAGE

ADMER™ Adhesive Resin is supplied in the form of small, free flowing pellets and can be easily handled with commercially available equipment.

As long as ADMER™ Adhesive Resin is stored under typical manufacturing warehouse conditions, it does not require any special care in storage. Precaution should be taken in opening the package to avoid contamination by foreign materials.



### DRYING

Since ADMER™ Adhesive Resin is a non-hygroscopic material, it absorbs less moisture than non-polyolefinic polymers. Therefore, ADMER™ Adhesive Resin does not require drying prior to processing.



### DISPOSAL

ADMER™ Adhesive Resin can be disposed of by either landfill or incineration. However, any disposal must comply with federal, state, and local regulations.

Prior to using ADMER™ Adhesive Resin, read and understand the current Safety Data Sheet available from Mitsui Chemicals America, Inc.





## ADMER™ Processing Recommendations

### PROCESSING

Recommended processing temperatures for ADMER™.

EXTRUSION					
PP Type Grades (QF AND QB)					
C1	C2	C3	C4	AD	DIE
200 - 230°C 390 - 445°F	200 - 230°C 390 - 445°F	200 - 230°C 390 - 485°F	230 - 250°C 445 - 485°F	230 - 250°C 445 - 485°F	230 - 250°C 445 - 485°F
PE Type Grades (NF)					
C1	C2	C3	C4	AD	DIE
180 - 200°C 355 - 390°F	180 - 200°C 355 - 390°F	200 - 230°C 390 - 445°F	200 - 230°C 390 - 445°F	200 - 230°C 390 - 445°F	200 - 230°C 390 - 445°F
Elastomer Type Grades (SF AND SE)					
C1	C2	C3	C4	AD	DIE
120 - 160°C 248 - 320°F	200 - 250°C 390 - 485°F	230 - 250°C 445 - 485°F	230 - 270°C 445 - 520°F	230 - 270°C 445 - 520°F	230 - 270°C 445 - 520°F

**Maximum temperature 300°C or 570°F, minimum temperature 180°C or 355°F**

Temperatures exceeding the upper limit or in situations where the resins remains molten for excessive periods may cause decomposition of the polymer.

### SHUTDOWN

The following procedure is recommended when terminating the extrusion processing.



#### UP TO 2 HOURS

Maintain temperature setting. Screw rotation can be stopped.



#### MORE THAN 2 HOURS

Purge out and shut down in accordance with commercial practices.

Recommended purging materials and their extrusion temperatures for a shutdown.

ADMER™ TYPE	PURGING MATERIALS	TEMPERATURES
Polypropylene (PP) Type	Polypropylene	200 - 250°C (445 - 480°F)
Polyethylene (PE) Type, Elastomer Type	Low-density polyethylene	200 - 230°C (390 - 445°F)

## ADMER™ SUPPORT NETWORK, WORLD-WIDE LOCATIONS

ADMER™ Adhesive Resin is produced in Asia, Europe, and North America, with global management oversight and alignment of specifications. Customers of Mitsui Chemicals America, Inc. should be confident that their global supply chains will be supported by our network of manufacturing sites, transportation, logistics, and local warehouses. The USMCA (ex-NAFTA) and Latin America regions are supplied with ADMER™ Adhesive Resin made in the USA.



### MITSUI CHEMICALS AMERICA, INC.

Mitsui Chemicals America, Inc. produces and supplies specialty chemicals and high-performance polymers to North and South American markets. The company's product lines are marketed in cooperation with its parent company, Mitsui Chemicals, Inc. and its global affiliate network. Mitsui Chemicals, Inc., a leading company in the global chemicals industry, is committed to contributing to society by providing innovative, high quality products and services to customers, and creating materials that maintain harmony with the environment. Please visit: [mitsuichemicals.com](http://mitsuichemicals.com).

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