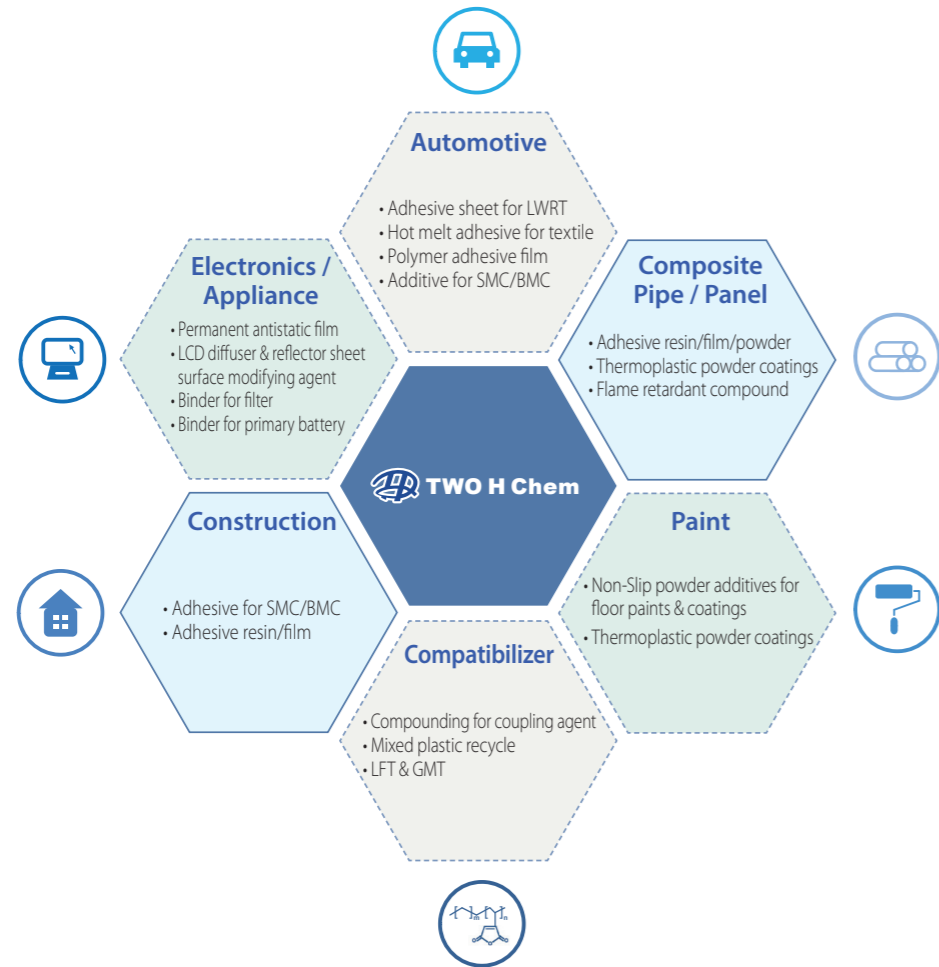


Application of TWO H Chem's special high performance polymer



TWO H Chem

POLYMER SPECIALIST

- Special Compounds
- Polymer Powders
- Functional Film & Sheet

We can offer you various customized products to fulfill your needs in many applications.

For further information, please contact us

TWO H Chem offers a wide range of functional polymer products based on many different polymer. Do not hesitate to contact us to discuss your specific requirements.

HEAD OFFICE • PLANT

234 Chungmin-Ro, Goesan-Eup, Goesan-Gun, Chungchungbuk-Do, Korea
Tel : 82-43-832-6760 / Fax : 82-43-832-6763

EUMSEONG PLANT

475-38 Deockho-Ro, Samseong-Myeon, Eumseong-Gun, Chungchungbuk-Do, Korea
Tel : 82-43-877-6851 / Fax : 82-43-878-7024

SEOUL OFFICE

1614, Shinanmetrokhon, 10, Teheran-Ro 88-Gil, Gangnam-Gu, Seoul, Korea
Tel : 82-2-3463-6760 / Fax : 82-2-3461-6953

CONTACT

E-mail info@twohchem.com

www.TWOHChem.com

www.TWOHChem.com



TWO H Chem Ltd.

TWO H Chem's **Main Products**

TWO H Chem for **High Quality** and **High Customer Satisfaction**

TWO H Chem specializes in the production of customized products and systems made of **Special Compounds, Polymer Powders, Functional Film & Sheet.**

Since its establishment in 2002, TWO H Chem has created a relationship with automobile, home appliance, construction, electric/electronic, paint, textile and pipe industries field, starting with the manufacturing of various functional polymer materials.

All executives and staff in TWO H Chem make a constant effort for high quality and high customer satisfaction through producing the world best products.

Company **History**

2002 Establish TWO H Chemical	2012 Start to supply permanent antistatic film to SAMSUNG Electronics
2006 Certificated ISO 9001 Awarded \$1,000,000 export tower	2013 Awarded silver medal, HYUNDAI E&C tech fair Awarded \$10,000,000 export tower
2007 Set plant at Goesan Certificated INNO-BIZ, Venture Change company name, TWO H Chem	2014 Awarded the trader of this month prize Awarded korea best patent grand prize
2008 Certificated R&D center Awarded \$3,000,000 export tower	2015 Certificated MAIN-BIZ Set 2nd plant at Eumseong
2011 Awarded technical special grand prize Awarded \$5,000,000 export tower	2016 Certificated GREEN-BIZ

Special Compounds

- Polyolefin adhesive resins
- Permanent antistatic compounds
 - Compatibilizers
- Flame retardant compounds



Main Application

- Composite pipe
- Composite panel
- Electronics, displays
- Plastic compound

Polymer Powders

- Ultra fine powders
- Non-Slip powder additives for floor paints & coatings
- Thermoplastic powder coatings
- Hot melt adhesive powders for textile

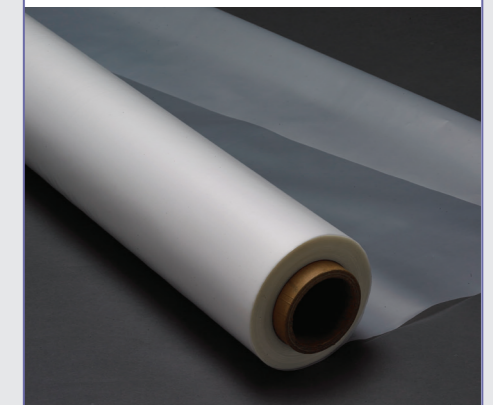


Main Application

- SMC / BMC
- Display module
- Filter
- Battery
- Paint
- Pipe coating
- Automotive
- Textile

Functional Film & Sheet

- Polymer adhesive film
- Adhesive sheet for LWRT
- Permanent antistatic film



Main Application

- Multi layer structure
- Automotive
- Electronics, displays

SPECIAL COMPOUNDS



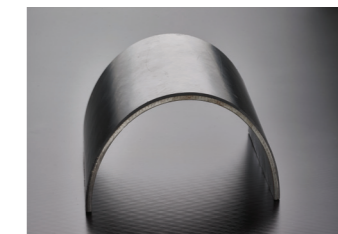
- Polyolefin adhesive resins
-
- Permanent antistatic compounds
-
- Compatibilizers
-
- Flame retardant compounds

Special Compounds

Polyolefin adhesive resins

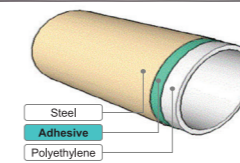
Increasing number of life styles and growing consumption of plastics require more kinds of composite materials. To meet this requirement, materials have to be changed in proper ways such as grafting. TWO H Chem's adhesive resin, *NOVA*, in spite of its adhesive property and polarity gained through grafting, still maintains basic property of polyolefin resins.

Tie layer for composite pipe



Multi layer composite pipe

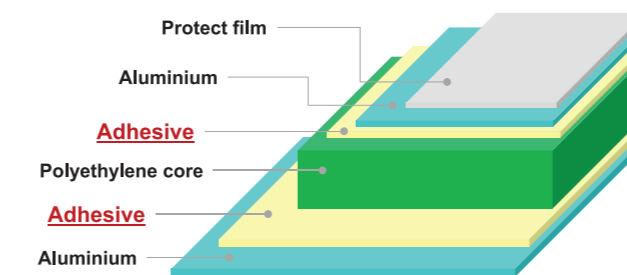
- Usage
Adhesive layer between PE / Steel
- Features
Excellent long term adhesion durability



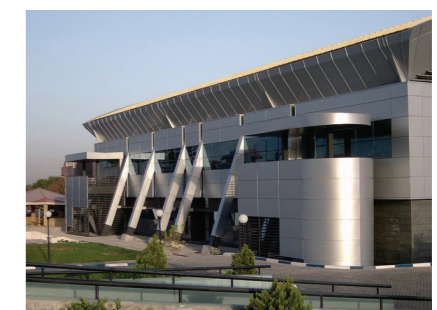
PE coated steel pipe

- Usage
Adhesive layer between PE / Epoxy
- Features
Excellent long term adhesion durability

Tie layer for composite panel



- Usage
Adhesive layer between Polyethylene core / Aluminium
- Features
Excellent long term adhesion durability



Aluminium composite panel (ACP) is mainly composed of Aluminium / Adhesive / Polyethylene / Adhesive / Aluminium. Adhesive resin should have a powerful adhesion strength which can not be separated as outdoor and indoor building material.

Permanent antistatic compounds

- Excellent permanent antistatic performance : $10^{11} \downarrow^*$
- Contamination free with stable molecular structure (No surface migration by extra additives)

Conductive polymer

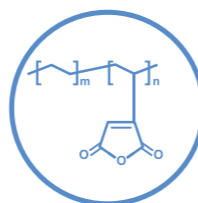
Antistatic effect of normal (low molecular weight) antistatic agent comes out when it bleeds out on surface of film. And antistatic effect fades out with bleeding out itself. But antistatic polymer is dispersed and fixed in component after extruding film. And antistatic effect of film comes from conductivity of antistatic polymer itself. Fundamentally, TWO H Chem's permanent antistatic compounds can not be contaminated by any extra additives in antistatic film.



Compatibilizers

Thermoplastic maleic anhydride grafted copolymers provide a very effective means to alter the dissimilar phases and enhance the physical, thermal and optical properties of a polymer blend. Primary Compatibilizer Markets for thermoplastic maleic anhydride grafted polymers are plastics compounding and mixed plastic recycle industries.

Specifically designed to provide compatibilization and act as a chemical coupling agent for melt blends of polyethylene and polypropylene with inorganic fillers or additives, fiberglass, wood flour, natural fibers, paper fiber and other materials.



- Compounding for Coupling Agent
- Mixed Plastic Recycle
- LFT & GMT

NOVACOM™ & NOVACOM-P™

- Maleic anhydride functionalized high density polyethylene in pellet / powder form
- Maleic anhydride functionalized homo / block polypropylene in pellet / powder form

Flame retardant compounds

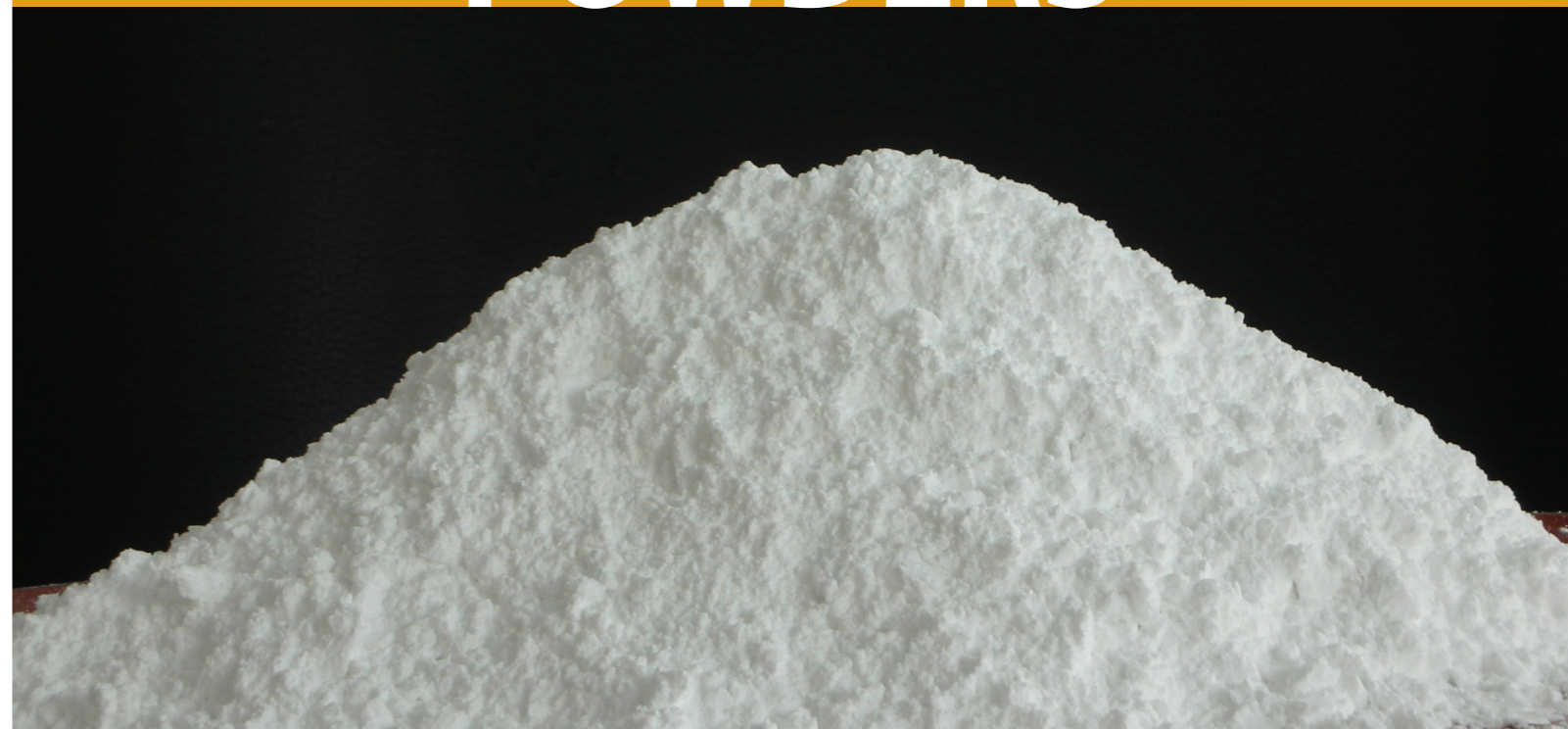
Flame retardant(FR) compounds are non-halogenated FR compounds including polyolefin resin and inorganic fillers. FR compounds also offer excellent flame resistance and mechanical property. In addition, they have a good extruding workability (single extruder) and adhesion property.

FR compounds offer performance characteristics as:

- UL 94(V-0)
- Single extrusion
- Availability in pellet compounds
- Non-halogen products
- Standard and custom formulations



POLYMER POWDERS



PE Powders | PP Powders | PO Powders | PES Powders | XLPS Powders

Ultra fine powders

Non-Slip powder additives for floor paints & coatings

Thermoplastic powder coatings

Hot melt adhesive powders for textile

Ultra fine powders

Processing additives for SMC / BMC

High Density Polyethylene (HDPE) Fine Particle Powder

FIPOLDER is a high density polyethylene (HDPE) polymer in fine particle powder form. Unlike waxes, these higher molecular weight materials exhibit high toughness.

Main application of FIPOLDER

Low shrinkage agent, lubricant for SMC / BMC (shrink-reducing, highly flat surface)



Cross-Linked Polystyrene Fine Particle Powder

CS Series™ is a cross-linked polystyrene in fine particle / spherical powder form. These cross-linked polystyrene particle materials exhibit high clarity, hardness, heat resistance and dimensional stability.



Coating Powders for LCD diffuser & reflector sheet



SCATER™ is a thermoplastic polymer in fine particle powder form.

Product	Application	Description
SCATER ™	Display module of TV, PC monitor, notebook, tablet PC - Coating of diffuser sheet - Coating of reflector sheet	<ul style="list-style-type: none"> • Good softness better than PMMA • Excellent abrasion resistance

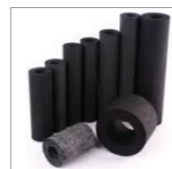
Polymer powder binder

SP Series™

SP Series™ powders are well suited for use in water, chemical and gas filter applications. It can be independently sintered into a filter or used as a binder for activated carbon.

Application of SP Series™

- Sintered filters
- Activated carbon filters



EPOLDER™

EPOLDER™ polyethylene microparticle powder is used as a binder in the manufacture of the alkaline battery cathode rings.

EPOLDER™ IN ALKALINE-MANGANESE-BATTERIES



Non-Slip powder additives for floor paints & coatings

FloorGrain™ thermoplastic high molecular weight polymer powders are designed for use as an additive in paints and coatings for high performance flooring applications. **FloorGrain**™ can be used in a wide variety of painting system such as epoxy, polyurethane, acrylic and water borne paint formulations.



Key Benefits

- Non-Slip effect
- Anti-Noise effect that eliminates tire squeal
- Excellent abrasion resistance & extended coating life
- Matte finish & easy to clean
- Cost saving

Broad & Various Applications

- Parking garages & heavy duty industrial flooring
- Outdoor & Indoor flooring paint
- Swimming pool & bathroom's floor
- Kitchen flooring
- Gas station flooring
- Marine & ship's floor, stairs and deck

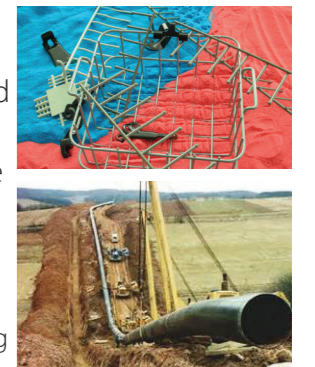
Thermoplastic powder coatings

Thermoplastic adhesive powder for metal coating

NOVA-P™ products are high performance metal coating powder, based on modified polyolefin with polarity groups. They have been specifically designed to provide a strong bonding, long lasting for metal in exterior applications on steel and aluminum. This coating powder has excellent adhesive strength to the metal substrate without any primer. The material also provides good abrasion and impact resistance.

3 layer coating system for oil & gas line pipe

NOVA-P™ thermoplastic adhesive powder is used as a tie-layer in 3 layer steel pipe coating systems. **NOVA-P**™ offers optimal adhesion properties for multi layer polyethylene coating systems.



Hot melt adhesive powders for textile

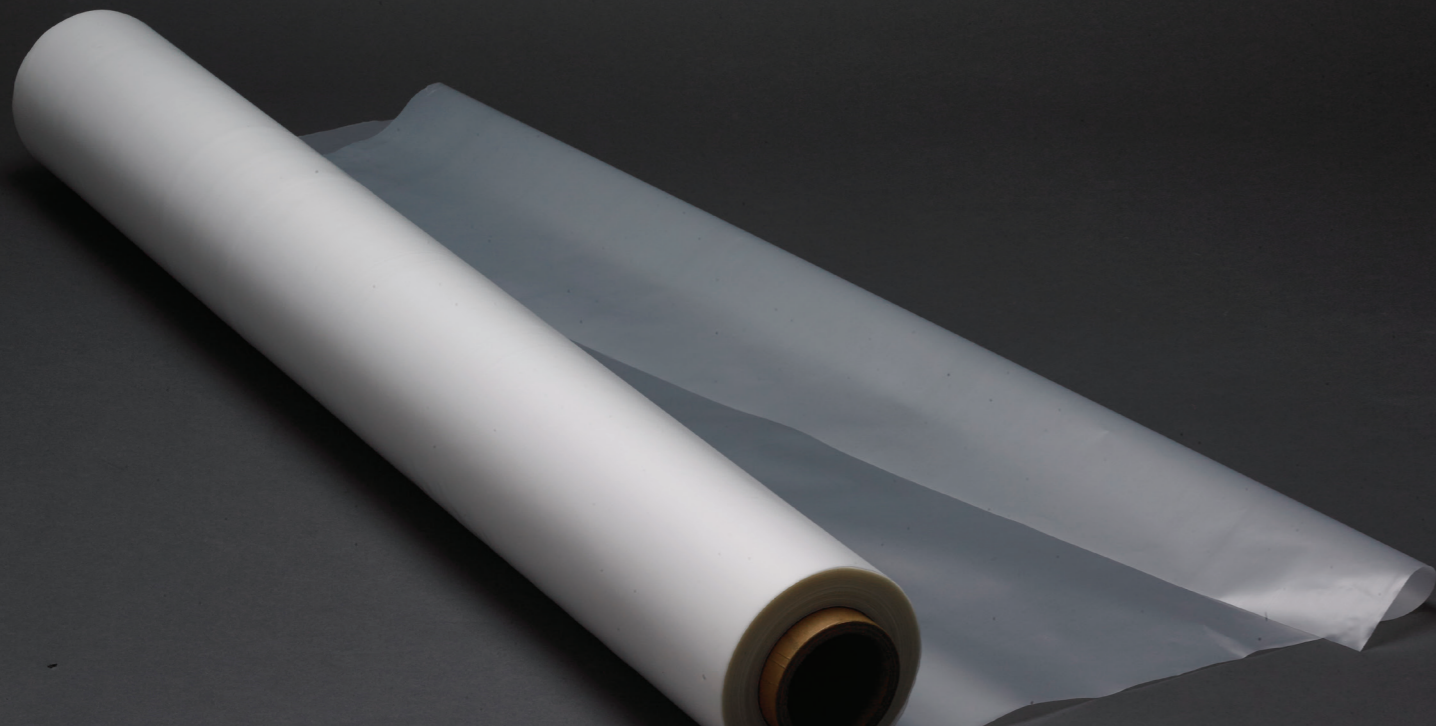
Application of HP Series™

- Interlining fabrics for men's and women's outerwear
- Automotive textiles for interior trim and seats
- Toe puffs, shoe inlays and soles



HP Series™ thermoplastic powders melt and bond under heat. Hot melt adhesive powders are increasingly being used for processing textile surfaces and are in each case being optimized in terms of the properties required.

FUNCTIONAL FILM & SHEET



- Polymer adhesive film
- Adhesive sheet for LWRT
- Permanent antistatic film

Functional Film & Sheet

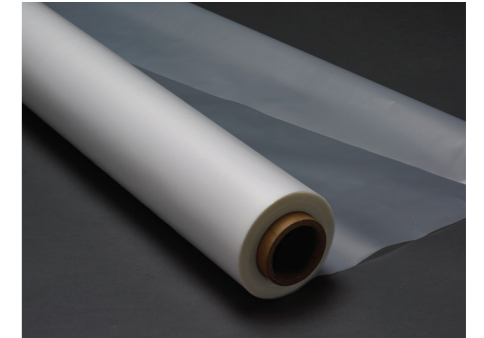
Polymer adhesive film

Adhesive film for multi layer structure

Why need adhesive film and resin?
For making composite material, which is needed in industry (example : Steel / Aluminium + PE, composite of each other plastics)
Adhesive films are mainly used as tie layer in composite material.

Application area of adhesive film

- Aluminium / Steel composite panels & pipes as tie layers
- Multi layer structures such as films, tubes and thermoformable sheets
- Coating and laminating of textiles, films, non-woven materials, leather, foam materials (Automobile parts)



Adhesive sheet for LWRT

Adhesive sheet for automobile LWRT (Low Weight Reinforced Thermoplastics)

Characteristics

- Lightweight material
- Excellent formability

Application for automobile

- Underbody panel
- Headliner
- Parcel shelf
- Trunk trim



Permanent antistatic film

Polyolefin based permanent antistatic film reduce cost and increase productivity enormously!
No migration, carbon free, surfactant free and heavy metal free.

Shielding bag



LCD Module protection shielding bag

Lamination film



Lamination film for multi layer aluminium bag

Interleaving sheet



LCD Panel protection sheet