TRADEASIA

PLASTIC CHEMICALS BROCHURE

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About Us

Tradeasia International Pte. Ltd. is a privately owned, independent company headquartered in Singapore. We are a global trading organization providing integrated chemical procurement services with certainty and trust, which makes Tradeasia unique.

Tradeasia International was setup with the sole intention of carrying out chemical distribution services especially to commodity industries in many parts of the world. Today, Tradeasia International represents a growing number of businesses that are serving a variety of markets. We source and supply about 500-600 containers monthly to our customers worldwide.

12 Locations

50+ Suppliers

500+ Products

400+ Clients

Polyethylene (PE)

Polyethylene is a thermoplastic polymer with variable crystalline structure and an extremely large range of applications depending on the particular type. It is one of the most widely produced plastics in the world

Types of Polyethylene

High Density Polythylene (HDPE)

A strong, high density, moderately stiff plastic with a highly crystalline structure. It is frequently used as a plastic for milk cartons, laundry detergent, garbage bins, and cutting boards.

Properties :

- Excellent resistance to most solvents
- Good resistance to alcohols, dilute acids and alkalis
- Relatively stiff material with useful temperature capabilities
- Excellent electrical insulating properties
- Good low temperature resistance
- High tensile strength
- Very low water absorption

Applications :

Packaging

High Density Polyethylene is used in several packaging applications including crates, trays, bottles for milk and fruit juices, caps for food packaging, jerry cans, drums, industrial bulk containers etc

Consumer Goods

Low cost and easy processability make HDPE a material of choice in several household/ consumer goods like garbage containers, housewares, ice boxes, toys etc.

Fiber & Textiles

Thanks to its high tensile strength, HDPE is widely used in ropes, fishing and sport nets, nets for agricultural use, Industrial and decorative fabrics, etc.

Pipe Systems

Other applications of HDPE include pipes and fittings due to its excellent resistance to chemical and hydrolysis

Linear Low-Density Polyethylene (LLDPE)

LLDPE is similar to LDPE with the added advantage that the properties of LLDPE can be altered by adjusting the formula constituents and that the overall production process for LLDPE is typically less energy intensive than LDPE.

Properties :

- Very flexible with high impact strength
- Translucent and natural milky color
- Excellent for mild and strong buffers
- Good stress crack and impact resistance
- Good chemical resistance
- Good water vapor and alcohol barrier properties

Applications :

Linear Low-Density Polyethylene (LLDPE) suitable for a variety of film application such as general purpose film, stretch film, garment packaging, agri-cultural film, etc.

Low Density Polythylene (LDPE)

A very flexible material with very unique flow properties that makes it particularly suitable to plastic film applications like shopping bags. LDPE has high ductility but low tensile strength which is evident by its propensity to stretch when strained.

Properties :

- Flexible and Tough
- Good resistance to alcohols, dilute alkalis, and acids
- Temperature resistance up to 80°C continuously and 95°C for shorter times
- High impact strength at low temperature, good weatherability
- Low cost polymer with good processability
- Excellent electrical insulating properties

Applications :

Low Density Polyethylene (LDPE) uses majorly revolve around manufacturing containers, dispensing bottles, wash bottles, tubing, plastic bags for computer components, and various molded laboratory equipments. The most popular application of low density polyethylene is plastic bags

Packaging

Thanks to its low cost and good flexibility, LDPE is used in packaging industry for pharmaceutical and squeeze bottles, caps and closures, tamper evident, liners, trash bags, films for food packaging (frozen, dry goods, etc.), laminations etc.

Pipes & Fittings

Low Density Polyethylene is used to manufacture water pipes and hoses for the pipes and fittings industry due to Its plasticity and low water absorption.

Other Applications

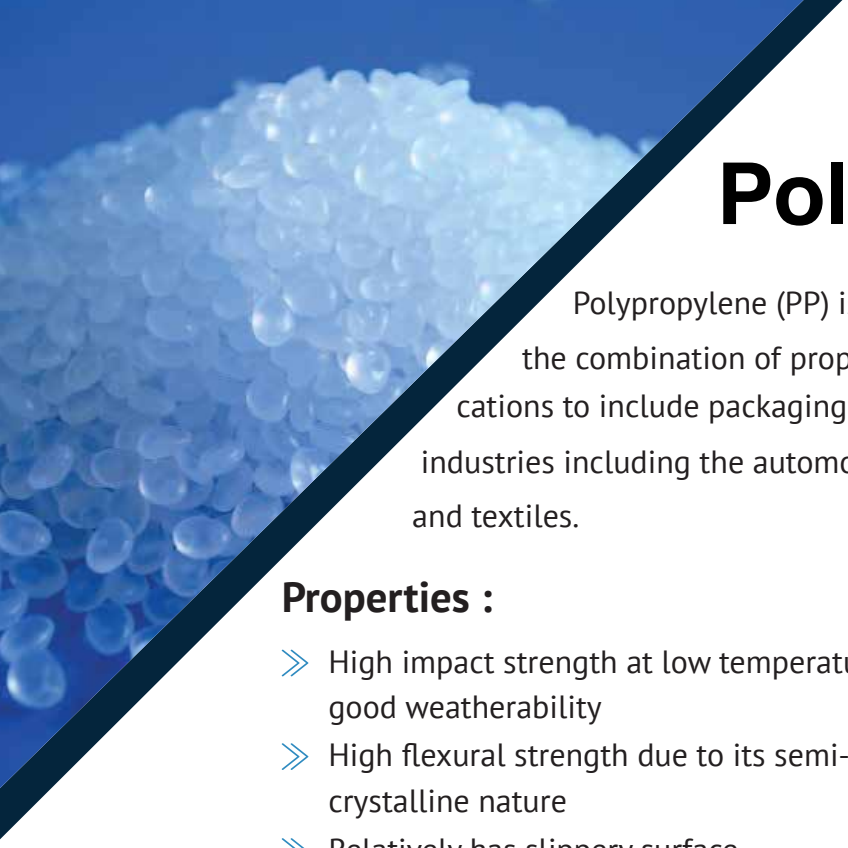
Include consumer goods - housewares, flexible toys, agricultural films, wiring & cables - sub-conductor insulators, cable jacketing.

Applications of Polyethylene

- Packaging Applications
- Consumer Goods
- Fibers & Textiles
- Pipes & Fittings
- Automotive Parts
- Toys Manufacture
- Housewares
- Automotive
- Construction
- Agriculture
- Masterbatch
- Powder Coating
- Film Applications
- Containers

Grades of Polyethylene

- Film Grade
- Injection Grade
- Extrusion Grade
- Rotational Molding Grade
- Monofilament Grade



Polypropylene (PP)

Polypropylene (PP) is a thermoplastic "addition polymer" made from the combination of propylene monomers. It is used in a variety of applications to include packaging for consumer products, plastic parts for various industries including the automotive industry, special devices like living hinges, and textiles.

Properties :

- High impact strength at low temperature, good weatherability
- High flexural strength due to its semi-crystalline nature
- Relatively has slippery surface
- Resistant to absorbing moisture
- Good Resistance to fatigue
- Excellent electrical insulator
- Superior scratch resistance

Types of Polypropylene

Homopolymers

It is a general purpose grade. It contains polypropene monomers in semi crystalline form. In addition, homopolymers provide strong resistance to environmental stress cracking when in contact with alcohols, esters, detergents or polar hydrocarbons.

Copolymers

They are further divided into several types, which are:

• Random copolymers:

Polypropylene has the co-monomer units arranged in irregular or random patterns along the polypropylene molecule and contain anywhere between 1% to 7% ethylene

• Block copolymers:

Polypropylene has co-monomer units arranged in blocks (that is, in a regular pattern) and contain anywhere between 5% to 15% ethylene.

Applications of Polypropylene

- Consumer Goods
- Fiber & Fabrics
- Industrial
- Automotive
- Medical
- Flexible & Rigid Packaging

Grades of Polypropylene

- Film Grade
- Extrusion Grade
- Injection Grade

Polyvinyl Chloride (PVC)

Polyvinyl Chloride (PVC) is one of the most commonly used thermoplastic polymers in the world. It is a naturally white and very brittle (prior to the additions of plasticizers) plastic. It is used most commonly in the construction industry but is also used for signs, healthcare applications, and as a fiber for clothing.

Properties :

- Can be reheat without significant change
- Good density compared to others
- Easily recycled
- Good rigidity
- Chemically resistant to acids, salts, bases, fats, and alcohols, making it resistant to the corrosive effects of sewage
- Good tensile strength

Types of Polyvinyl Chloride

Flexible plastic, plasticized or regular PVC is softer and more amenable due to the addition of plasticizers like phthalates (e.g. diisononyl phthalate or DINP). Flexible PVC is commonly used in construction as insulation on electrical wires or in flooring for homes, hospitals, schools, and other areas where a sterile environment is a priority, and in some cases as a replacement for rubber.

Rigid PVC in particular has very high density for a plastic making it extremely hard and generally very strong. Rigid PVC is also used in construction as pipe for plumbing and for siding which is commonly referred to by the term “vinyl” in the United States.

Applications of Polyvinyl Chloride

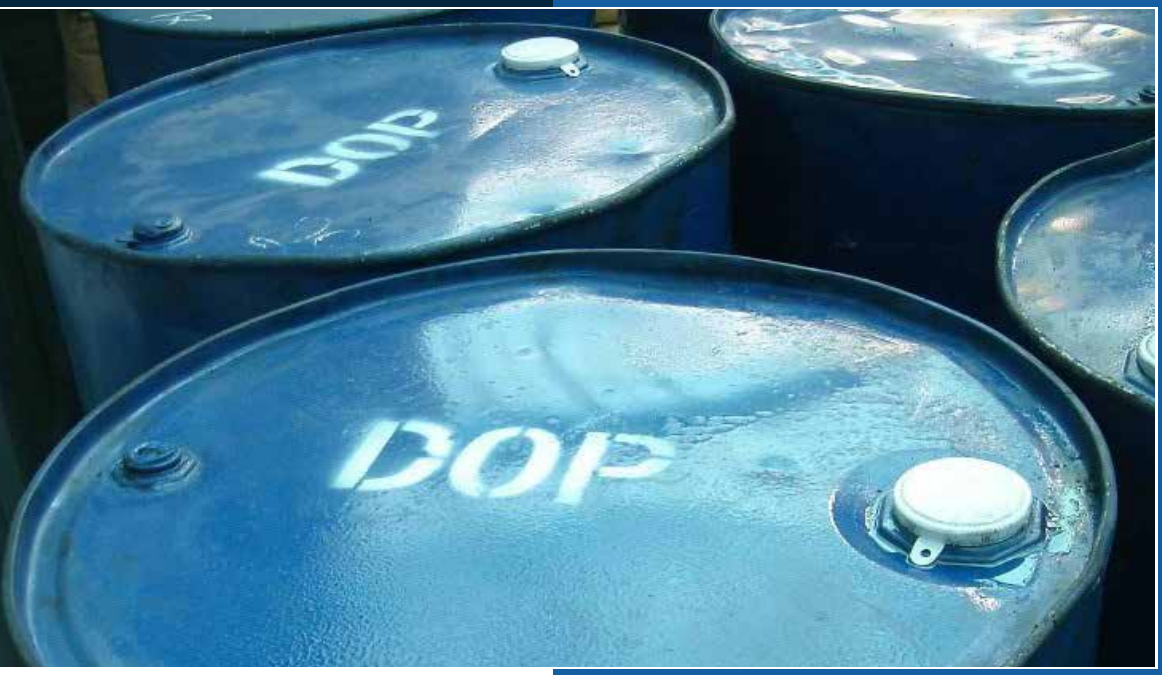
- Electric cable
- Constraction
- Signs
- Clothing
- Healtcare application
- Pipes manufacture
- Flooring

Grades of Polyvinyl Chloride

- Suspension Grade
- Emulsion Grade

Dioctyl Phthalate (DOP)

Dioctyl Phthalate/Bis (2-ethylhexyl) phthalate is an organic compound with the formula $C_6H_4(CO_2C_8H_{17})_2$. DEHP is the most common member of the class of phthalates, which are used as plasticizers. It is the diester of phthalic acid and the branched-chain 2-ethylhexanol. This colorless viscous liquid is soluble in oil, but not in water.



Properties of DOP :

- Clear liquid, slight odor
- Insoluble in water
- Good stability to heat and UV light
- Broad range of compatibility
- Excellent resistance to hydrolysis

Applications of DOP :

Widely used general purposed plasticizer for the manufacture of flexible plastic, for instance:

- PVC
- Polyvinyl acetate
- Rubbers
- Cellulose plastics
- Polyurethane

Specification of DOP :

Property	Unit	Value
Water content	(%)	0.01 typical
Acid value after heating	(KOH MG/G)	0.02 Max
Esters	(%)	99 Min
Specific gravity	(20/20 °C)	0.986 ± 0.003
Refraction index	(N. 25/D)	1.485 ± 0.003
Heat loss	(125 °C, 3hr) (wt%)	0.06 Max
Volume resistance	(Ω-cm, 30 °C)	4×10^{11} Min

Dioctyl Adipate (DOA)

Dioctyl Adipate (DOA) or Bis (2-ethylhexyl) adipate, is a light colored, oily liquid. It is flexible at low temperatures, has good electrical properties, good resistance to weathering, and good stability to heat.

Properties of DOA :

- Good low temperature flexibility
- Good heat stability
- Good electrical properties
- Good resistance to weathering

Applications of DOA :

- Most often used as a PVC plasticizer
- To produce clear films to food packaging
- Used in paints as a way to disperse pigments
- Used as a plasticizer in food contact polymers and rubbers

Specification of DOA :

Property	Unit	Value
Molecular weight	g/mol	370
Ester content	%	99.5 Min
Appearance	-	Clear Liquid
Color	Hazen	20 Max
Acidity	Mg KOH/g	0.1 Max
Refractive index 20 C		1.447 ± 0.003
Specific gravity 20 c	g/cm^3	0.925 ± 0.002
Flash point	C	190 Min
Water content	%	0.1 Max
Viscosity 20 C	Cp	11 - 16

Dioctyl Terephthalate (DOTP)

Dioctyl Terephthalate, (DOTP) or Di (2-ethylhexyl) terephthalate is a colorless viscous liquid used for softening PVC plastics is known for chemical similarity to general purpose phthalates, It possesses very good plasticizing properties.

Properties of DOTP :

- Good heat and cold resistance
- Low volatility
- Excellent durability
- Low temperature flexibility

Applications of DOTP :

- Most often used as a PVC plasticizer
- Paint and coating of advanced furniture and interior decoration
- Solution for glass window fog in auto-motive industries
- Used in the production which required high heat resistant and high insulation

CONTACT US

133 Cecil Street, #12-03 Keck Seng Tower,
Republic of Singapore - 069535

Tel : +65-62276365
Fax : +65-62256286
Email : contact@chemtradeasia.com