



Polymerization EPC
Engineering Technology
Solution Provider

Phite[®]



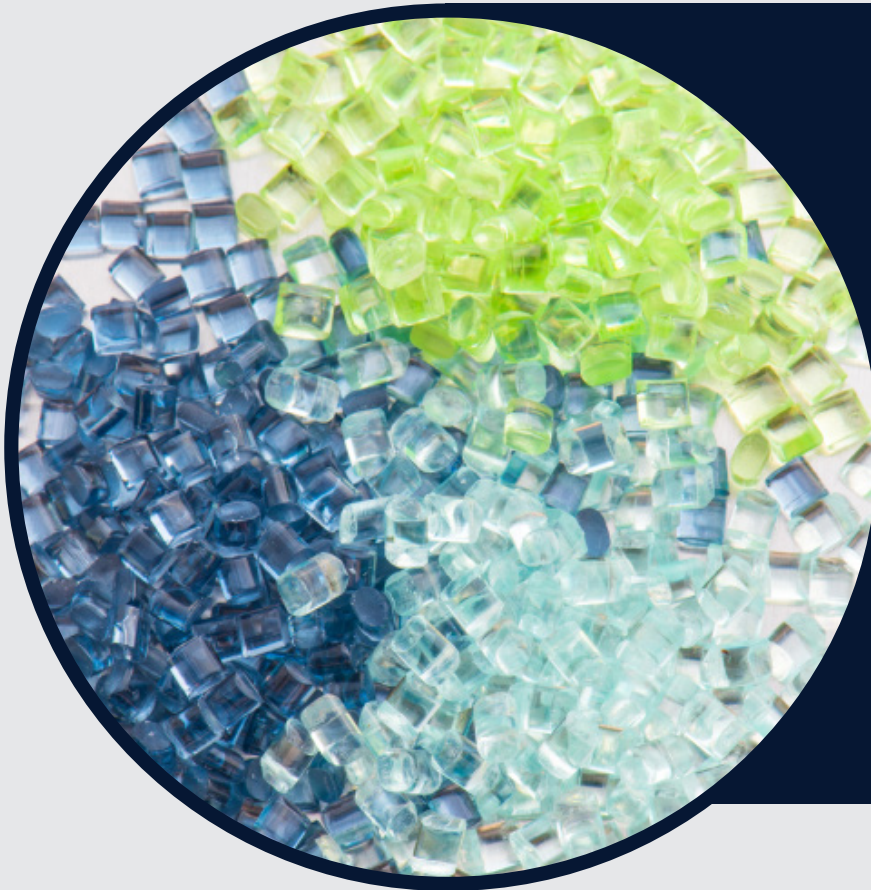
Introduction of Phite

Phite Technology is a technology-based EPC enterprise, which is specialized in providing engineering solutions, global sourcing and construction supervision in petrochemical industry, polymers, fibre, new energy, renewable chemicals and environmental protection.

Phite was founded in 2004, we have built more than 100 medium and large scale projects for our clients all around the world with comprehensive technology and engineering practice ability. We also provide technology-driven project solutions by the virtue of service experiences in project design, equipment sourcing, construction, project management and EPC.

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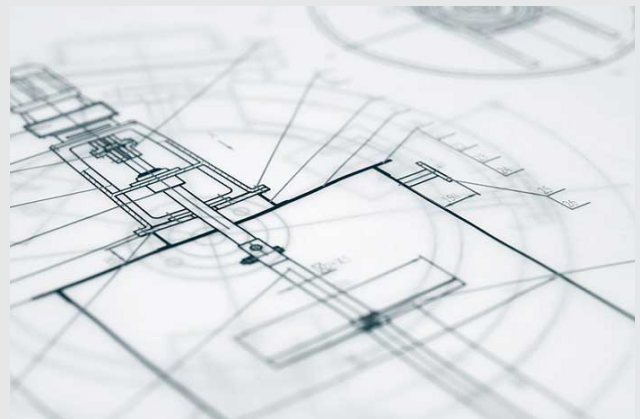
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Insisting on
providing
best polymer
engineering
and technology
service for global

About Phite

Phite Technology is a global professional supplier of technological and engineering solutions, we provide our clients with help in polymers, fibre and petrochemical industry based on our professionalized technology, R&D ability as well as our thirty years experiences in this field. The scope of engineering applications involves polyester filament, film, bottle blowing, industrial yarn and engineering plastics.



Phite has new technology development center and equipment processing center which makes us have strong R&D and design ability, which specialize in new equipment design, manufacturing, installation, adjustment, guiding as well as new product development. With many invention patents and new utility patents, Phite is in the leading position of LSP, SSP and differential polyester production technology.



Our Services

Phite focuses on project design, equipment production and installation of the polyesters(PET,PBT,PTT, hot melt adhesive, batch and continuous technology), PA, PA6, degradable materials(PBS,PBAT, etc), other polymers(PC,POM,etc).



Engineering Project Management

Our solution can both increase capacity, reduce energy cost or production waste and improve the output quality to maximize your investment.



Engineering Design Service

Providing primary design, construction design, pressure vessel design, the total plane design and the building design for chemical factory.



Automatic Control Service

Phite has advanced automatic control solutions, and our company is professional in the field of the current mainstream control system of industrial control field.

Our solution can both increase capacity, reduce energy cost or production waste and improve the output quality to maximize your investment.

Improving a plant usually requires only minor modifications. We have further options to choose if you would like a greater capacity improvement.



We provide design, equipment and constructions of completed industrial devices.

Our project management and engineering documents for each plant strictly comply with the international standard of chemical equipment engineering. Each plant will be built in cooperation with local installation companies under the guidance of experts.



Providing a complete controlling system which includes the selection and debugging of the instruments, the overall integration of all kinds of transmitters and sensors on site.

Provide electrical design and overall integrated site engineering implementation, cable and bridge design, laying and construction guidance.



Continuous Polymerization Equipment

Phite developed the four-reactor process continuous polymerization independently, of which the capacity of a single line is 30t to 1500t per day. The types includes bright, semi dull, full dull, cationic, film grade, bottle grade, low-melting-point, water solubility, anti-flaming. Final polymerization reactor is available as single or dual drive versions to ensure the smooth and reliable operation of equipment which is beneficial to high viscosity lifting.





Equipment Advantages:

- High esterification rate, less side effects
- Online recycling and total reuse technology, low consumption
- No-clogging polymerization vacuum system, stable production process
- LSP SSP sharing HTM, achieve mutual complementary

Four-reactor polymerization is the most popular and advanced continuous polyester production technology. It is between three-reactor and five-reactor polymerization processes, and is improved on the basis of five-reactor polymerization process. The four-reactor polymerization process retains the features of low temperature and low mole ratio of five-reactor. It also shorten the process flow. Both investment costs and production consumption have been reduced. Our four-reactor polymerization technology contains a number of patented technologies and proprietary technology, such as unique horizontal agitation, vertical precondensation reactor, LSP and SSP share the HTM.

Batch Semi-continuous Polymerization

Comply with decades of production and formula experience and cooperations with scientific research institute and manufacturing enterprise, phite studied the synthetic route and kinetics of most types of polyester were in details, using specialized simulation software and tools, thus launched a series of industrial equipment suitable for production. It can produce cationic, water soluble, low melting point, high shrinkage, anti-flaming retardant and other differential polyester products, it can be used for polyurethane, hot melt adhesive and other special types at the same time.





Equipment Advantages:

- Produce special types, the types replacement consumption is extremely less
- Perfect combination of batch and continuous process
- Flexible production capacity, wide ranges switch
- Stable product quality, balanced melt output

The slurry configuration system of the equipment can accomplish the compound of modified polyester materials, the catalyst and additives can be added into the esterification reaction under low temperature, and the process can be carried out continuously under low temperature and atmospheric pressure which is stable and safe. A second esterification reactor (pre-polycondensation) is for facilitating the production of differentiated varieties. At the same time, the variety change is convenient, there is no need to wash the reactor, so as to avoid material loss and waste generation during startup and shutdown process. The pre-polycondensation reaction can be carried out in the second esterification reactor to improve the output. The vacuum system adopts steam injection pump to save energy, reducing energy consumption and wastewater generation. It is suitable for the product development and production of small batch and multi-variety differentiated polyester.

Pilot experimental Equipment

Comply with our rich experience in large projects, we can provide many professional and technical services for scientific and technological enterprises, scientific research institutions, jointly built universities and enterprises, such as experimental testing, R&D, physical data analysis, small-scale pilot test and other process verification;

It can be used for experimental polymerization, production of small batch and high value-added devices, such as PET, PETG, PBT, PTT, PEN, elastomer, polyester slurry and other different types.





Equipment Advantages:

- Small batch and high added value.
Fully simulated industrial production
- Design capacity: 1L-1000L
- Unique heating system, step-less temperature regulation

Customized polymerization reaction for experiment, small batch and high value added;

Polymer experimental device for special materials (titanium and other special alloy materials);

Fully simulate industrial production and design directly for industrial engineering;

The independent developed automatic detection technology is more suitable for scientific development and research;

Unique heating system, step-less temperature regulation, safe and reliable;

Self R&D center can provide testing and product development for customers.

Liquid State Polycondensation Equipment

Liquid state polycondensation means that when PET polyester is in the melt state, the viscosity of PET polyester melt can be increased through special working conditions. Higher viscosity polyester can be directly produced in one step and this technology can improve the product quality and produce high-grade polyester filament staple fiber, strapping, rPET, polyester film and other products, which can achieve bottle to bottle, filament to filament and textile to textile, improving the recycling efficiency and quality of resources.





Equipment Advantages:

- Can replace SSP and reduce the investment
- Continuous process, low consumption and low production cost
- Design capacity: 4t/d-300t/d
- Intrinsic Viscosity IV can lift 0.05-0.3dl/g

Due to the complex source of recycled polyester material, it is hard to ensure the consistency, which is reflected in the unstable viscosity in the production process. The liquid state viscosity increasing reactor can improve the viscosity of PET polyester in melt state under high temperature and high vacuum condition and directly produce polyester solution with higher viscosity in one step, This technology can realize that one reactor can replace the whole plant of solid-phase polymerization (SSP), reducing investment and operation cost.

Solid State Polycondensation

Solid state polymerization (SSP) process means that the solid state chips is subjected to polycondensation reaction to increase the molecular weight and intrinsic viscosity (IV). The process can be used for the IV lifting production of a variety of polymer chips, such as PET, PBT, PTT, PA, PBAT and PLA. The batch type solid-state viscosity increasing process has flexible product adjustment and is suitable for small batch production. High viscosity pellets were produced by crystallization, drying and IV lifting which is used for food grade bottles and industrial yarn.





Equipment Advantages:

- Less space and reasonable utilities
- Precise control strategy of temperature and pressure
- Highly flexible operation and product adjustment
- Adapt to multi types production

SSP also known as solid state polymerization, is a polymerization reaction carried out in the solid state. Solid polymer chips with a certain molecular weight are heated to above the glass transition temperature and below their melting point (usually about 10-40 °C below the melting point), and small molecular products are taken away through vacuum system to continue the polymerization reaction and further increase the viscosity.

The batch solid state viscosity increasing device is mainly composed of viscosity increasing system, heating system, cooling system, vacuum system and electrical integrated control system. It has the advantages of less space, low maintenance cost, environmental friendly, modular installation, one click production.

Our Happy Clients

After years of research, with rich project experiences in the polymerization technology industry. Through standardized and professional service processes, Phite has won the trust of many customers, including university scientific research institutions and industry leading enterprises, and established long-term cooperative relations.

We will always strive to provide the best and most professional polymerization engineering and technical services for customers in China and around the world.



HENGLI
PETROCHEMICALS



KINGFA
TECHNOLOGY



CHINA
RESOURCES



FSPG
HI-TECH



DUPONT
USA



HUVIS
KOREA



SUZHOU
UNIVERSITY



ZHEJIANG SCI-TECH
UNIVERSITY

The background of the slide features a close-up, slightly blurred image of a polymerization process, showing a dense field of small, light-colored, irregular particles or droplets. A large, dark blue, semi-transparent rectangular overlay covers the lower portion of the image, providing a high-contrast background for the white text.

We will always insist on providing the best and most professional polymerization engineering and technical services for customers around the world.

Relying on extensive industry experience and excellent customer service, we provide customers with professional solutions. It is suitable for all kinds of product applications.

If you want more informations, please visit the website:

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