DAI A INDUSTRY

> Vision to 2030: Dai A is going to become 1 of the top 10 companies in Compound & Masterbatch Field.

FACTORY

Luong Son Industrial Park, Highway 6, Hoa Son Commune, Luong Son District, Hoa Binh Province, Vietnam.

(+84) 2183 906 9961

HANOI OFFICE

16th Floor, Nam Cuong Building, Nguyen Thanh Binh Street, La Khe Ward, Ha Dong District, Hanoi City, Vietnam.

(+84) 243 200 6580

HO CHI MINH OFFICE

2F PLS Building, Y12 Hong Linh street, Ward 15, District 10, Ho Chi Minh city, Vietnam.

(+84) 283 636 6648

DAI A INDUSTRY

PLASTIC COMPOUND & MASTERBATCH

Manufacturer From Vietnam

www.daiaplastic.com

Introduction

Solution For Your Products!

Table of Content

INTRODUCTION

Dai A Industry Joint Stock Company was established in 2012, is a company specializing in researching, consulting, manufacturing and supplying Compound, additive, color and filler masterbatch for the plastic industry.

Factory

Dai A's two factories were built in Luong Son Industrial Park, Hoa Binh Province. There are 10 twin screw production lines, with maximum capacity 15,000 tons/month.

Ha Noi Office

Address: 16th Floor - Nam Cuong Building, Nguyen Thanh Binh street, La Khe ward, Ha Dong district, Ha Noi city, Vietnam.
Hotline: +84 862 484 539

Ho Chi Minh city Branch

Address: 2nd Floor, PLS Building - Y12 Hong Linh, Ward 15, District 10, Ho Chi Minh city, Vietnam.
Hotline: +84 903 392 017

Human Resource

- Over a decade of establishment and development, the number of personnel working in Dai A has reached now more than 200 people. Including:
- **4 Masters,**
- **16 Engineers,**
- **More than 50 Bachelors**

And many highly skilled workers, experienced and has been with the company for many years.

Combined with scientific organization creates a positive and effective working environment that connects employees together grow with business.

Flow Coefficient Meter:
The flow index meter is used to measure the flow index (MFR/MFI) in g/10 min and melt volume flow rate (MVR) in cm^3/10 min of thermosetting polymers flexible in tablets, powder or fine granules.

Density/Specific Gravity Meter:
Used to check the density of plastic products. Can quickly test plastic granules, films, calcium carbonate stone powder.....

Moisture Analyzer:
A moisture analyzer is a device that determines the moisture content with the loss on drying method and consists of a weighing and halogen heating unit.

Impact strength tester:
Used to determine the toughness/durability of materials and is a tool to study the change in brittleness - plasticity with temperature. Evaluate the ability of materials to withstand sudden impact loads.

Product Development & Measuring Equipment

And a system of measuring and quality control equipment such as: MI flowmeter, mechanical properties meter, flexural strength, film blowing machine, furnace…

Hardness Tester:
This equipment is used to measure surface hardness of compound and masterbatch products, such as pipe, film etc.

Tensile and flexural strength tester:
The tensile strength tester performs tension and compression on the same test chamber. The machine's test types include: testing tensile force, compression force, bending force, shear force, tearing force.

UV Tester for UV-Condensation acceleration aging tests

Use to accelerate the weather aging time of plastic materials, according to weather conditions such as sunlight, temperature, and climatic conditions. Thereby evaluating the durability and weather resistance of outdoor products such as: agricultural mulch films, greenhouse films, water tanks, plastic chairs, garden equipment... etc.

Filler Masterbatch

Filler masterbatch (Calcium Carbonate Masterbatch) under the brand name of Dai A would be known as the ultra fine dispersion with the guarantee of no agglomeration, ensure the whiteness, glossier and smooth surface for the articles.

This filler – the concentration of CaCO3 powder or Talc powder in the filler polymer base to modify vary properties of the plastic articles or the base plastic polymers.

APPLICATION	CARRIER	CONTENT	DOSAGE
BLOWING FILM	HDPE/LLDPE/LDPE	70% ~ 87%	< 70%
BLOW MOULDING	HDPE		< 30%
HDPE TARPAULIN	HDPE		< 50%
HDPE PIPE	HDPE		< 30%
PE LAMINATION	LDPE		< 30%
PP WOVEN/FIBC	PP HOMO		< 60%
INJECTION MOULDING	PP HOMO		< 30%
PP LAMINATION	PP RADOM COPOLYMER		< 30%
PP NON-WOVEN	PP HOMO		< 50%
CASTING FILM, INJECTION, EXTRUSION	PS, PA, PBT, PET, ABS, PBT/ABS Blend, PC/ABS Blend	70% ~ 83%	< 30%

Our filler includes but not limited to the exclusive options such as HD filler, HIPS filler , PE filler, PP filler, Transparent filler and so much more. Our filler master-batch products play vital roles on heightening polymers' physical properties of and minimize cost and work efforts for your supply chain as anti-burn at the die lips when it reaches high loadings.

Color Masterbatch

We have an informative library of Color Spectrums from many of our customers as well as having experienced developing teams, who are knowledgable and skillful.

Dai A's **Color masterbatch** used to color finished plastic products.

- Color masterbatch for Polyolefin plastic (PP, PE)
- Color masterbatch for engineering plastic (PA, ABS, HIPS...)
- Color masterbatch for transparent products (PET, PC)

- Dai A color masterbatch has good dispersion
- High coverage
- Heat resistance up to 350°C
- Weather resistance
- Diverse colors

WHITE MASTERBATCH

White masterbatch is used in a wide range of applications, including lamination, extrusion coating, protective films, fibers and non-woven, and injection molding.

COLOR MASTERBATCH:

Application from film sheet (created by extrusion molding) to household appliances (such as can, bottle, tray, box, etc.) and furniture (table, chair, lamp, etc.) by injection or blow molding.

MASTERBATCHES	APPLICATION	TiO2 CONTENT
WHITE	BLOWING FILM, CASTING FILM, INJECTION	20% ~ 75%
	EXTRUSION COATING PE FILM	60 ~ 70%
	EXTRUSION COATING PP FILM	60 ~ 70%
	MULTI LAYER PE FILM	20 ~ 75%
	CASTING FILM, INJECTION, EXTRUSION	20% ~ 70%
BLUE, RED, GREEN, ORANGE, PINK, YELLOW, BLACK, BROWN, GREY, FLUORESCENT	BLOWING FILM, CASTING FILM, INJECTION	

Additive Masterbatch

Plastic additives are an essential element bringing success to plastic-based products manufacturers and distributors worldwide. A plastic product not only needs a good base resin, but also needs different additives supporting and improving many features of the carrier plastic. Otherwise, that plastic product may not meet the required standards, or may not satisfy the needs of consumers.

GRADE	FUNCTION	APPLICATION	DOSAGE
IM-IR	INFRARED ABSORB	FILM FOR GREEN HOUSE	5% ~ 10%
IM-OP	OPTICAL BRIGHTENER	BLOWING /CASTING FILM, RAFIA	5% ~ 10%
IM-DA	DESICCANT	BLOWING /CASTING FILM, EXTRUSION	0.5% ~ 1%
IM-UV	ANTI UV (HALS)	BLOWING /CASTING FILM, INJECTION	1% ~ 5%
IM-AOD	ANTIOXIDANTS	BLOWING /CASTING FILM, EXTRUSION	1% ~ 3%
IM-FR	FLAME RETARDANT	EXTRUSION, INJECTION MOLD	5% ~ 18%
IM-BIO	POLYOLEFINS BIODEGRADABLE	BLOWING /CASTING FILM	3% ~ 5%
IM-ATB	ANTIBLOCK AGENT	BLOWING /CASTING FILM	0.5% ~ 1%
IM-SL	SLIP AGENT	BLOWING /CASTING FILM	1% ~ 3%
IM-SAB	SLIP AND ANTIBLOCK	BLOWING /CASTING FILM	0.5% ~ 2%
IM-PPA	PROCESSING AIDS	BLOWING /CASTING FILM, EXTRUSION	1% ~ 5%
IM-AST	ANTISTATIC	BLOWING /CASTING FILM, INJECTION	3% ~ 8%

Anti-oxidant additives are often used together with **anti-UV additives** for plastic products used outdoors with high temperature and humidity such as: water tanks, agricultural mulch, green house, marine aquarium linings, woven fabrics, body shells for motorcycles, cars, etc. Helps increase mechanical properties and product life, and can be used for a long time in all weather conditions.

Flame retardant masterbatch consists of flame retardant powder Tetrabromobisphenol A bis (2, 3-dibromopropyl ether) and Antimony trioxide (Sb2O3). It can be used in plastic extrusion, molding… products which are fire resistant for examples socket, power cubicle, fire hose, electric pipe etc.

Slip Additive Masterbatch is applicable to all processors from industries like Packaging (Monolayer & Multilayer flexible Packaging Film), Molding, Agricultural Films, and Bubble Films etc.
Slip Additive Masterbatch is highly recommended for the use as molding agents in injection molding application.

Plastic layers tend to stick together. The addition of an **Anti-blocking** agent creates space between 2 plastic layers (surface roughness) preventing so-called blocking. Mostly anti-blocking agents are used in multilayer structure films in order to have the highest benefit. **Anti-block masterbatch** specially formulated to give faster migration and better open ability for LDPE, LLDPE, PP, EVA film. It contains silica pigment, resin, and other additives.

Processing Aid reduce surface defects, such as common melt fracture phenomenom; improve surface brightness and smoothness of products. Make the color spread more evenly and the more luster. Reduce wears of a mold in the processing process, eliminate the die buildup. Reduce the gel that create extrusion process. Bring down the temperature, extend continous processing time.

Electrostatic charges are typically caused by friction between two materials. Static charging can disturb the continuity many process, e.g. Static charging can hinder the opening of the tubular film during packaging processes.
Often the static charging is the limiting factor for higher speed in these processes. In addition, a reduced static charging avoids dust pick up by the packed goods. As a result, the materials can stored and eventually displayed in a more attractive way.

Optical Brightnes masterbatch specially formulated to give brightener for LDPE, LLDPE, PP, EVA, PP Injection, Rafia, Blowing film… It contains OB1 (Diphenol vinyl – dibenzoxazol)pigment, resin, and other additives.

IM-BIO671 is an intermediate product that makes polyolefins **Biodegradable**. Composition of this product include: LLDPE resin, P-Life additives and CaCO3.
It contains P-life, a unique catalyst blend that has been tested and proven to comply with ISO14855. All the ingredients of P-Life are complied with FDA and EU ROHS Directive. IM-BIO671 is suitable for use in all food contact applications, is non-toxic and free from heavy metals.

Color Pellet Compound

It’s compounding of Color pigments with virgin resin (PP, PE, PS, ABS). Color Pellet compounds provide a unique balance of physical properties and ease of processing. A full range of flexural modulus, impact and other physical property options allows you to customize a solution to meet your specific application's needs. It is a very high flow grade developed for rigid components requiring good surface finish and impact strength.

Detail Applications:

- Injection molding
- Applications: automotive components, electric & electronics, medical & dental products, household goods and appliances like dishwashers, food trays - cups and to-go containers....

Reinforced Compound

Reinforced compound is made from a wide selection of base resins blended with reinforcers such as glass fiber, glass beads and carbon fiber. Our compound is an excellent alternative to metal in application for products required improved mechanical properties, special toughness, dimensional stability, temperature and chemically resistance..

Carbon Fiber Reinforced Compound

Carbon fibers added to PA, PBT, PC, PP base plastics make the final product harder and more resistant to ultraviolet rays, highly resistant to abrasion and impact, especially used in automobile manufacturing, electrical - electronic equipment.... It is also moisture resistant, suitable for outdoor industrial applications.

Advantages:
- Very low water absorption rate
- Good chemical resistance
- UV resistant

Properties:
- Compound reinforced carbon fiber on plastic base: PA, PBT, PC, PP
- Increase tensile strength and mechanical properties of the product.
- Improves impact resistance, hardness, and good friction and anti-slip resistance.
- Significantly higher stability than traditional base plastics, while increasing the electrical conductivity of the end product.

Reinforced Compound

Glass Fiber Reinforced Compound

- Automotive headlamps housings & engine covers
- Power hand drill tools
- Door handles and levers
- Outdoor satellites handles
- Automotive battery trays

20-30% GF/ABS:
- Injection molding
- Application: printer housings; scanners; laptop housings; electronic components

10-40% GF/PP:
- Injection molding
- Application: automotive; industrial parts

10-30% GF/PC:
- Injection molding
- Application: camera components; engineering parts

15-55% GF/PA6/PA66:
- Injection molding
- Application: automotive; gears; housings; wheels; industrial parts; electrical parts; automotive fittings; fishing rods

Compared to regular plastics, fiberglass compound offers huge improvements in tensile strength, toughness and other properties. Most fiberglass compounds also come with a number of other features such as fire resistance, abrasion resistance, lubricity and colored.

Talc Reinforced Compound

This is a compound that uses a base resin combined with talc powder and some additives, with a high flow rate. Using talc in thermoplastics helps increase hardness, flexural modulus and strength, reduces creep tendency in high temperature environments, improves thermal deformation temperature and dimensional stability of the plastic.

Advantages:
- Brings full features of the finished product in a single input material.
- Can be directly processed into finished products without mixing any other ingredients
- Special design according to finished product characteristics
- Increase hardness and flexural modulus, increase bending strength
- Reduces tendency to creep with temperature, reduces shrinkage, less warping
- Good thermal conductivity,...

Applications:
- Dai A's Talc powder reinforced compound with a mixing ratio of 20 - 55% Talc powder is used to produce a number of household appliances, plastic tables and chairs, auto parts, motorbikes or other demanding products. Good durability, high heat resistance (120-130°C) for a long time.

Function Compound

Brings additonal functions for the final product such as: Flame Retardant, Conductive, Anti-UV, Anti-scratch...

Halogen; halogen free; GF+FR/Homo-PP:
- Application: electrical/electronic components; automotive components; wire and cable applications

FR/PS:
- Application: electrical/electronic components; office applications

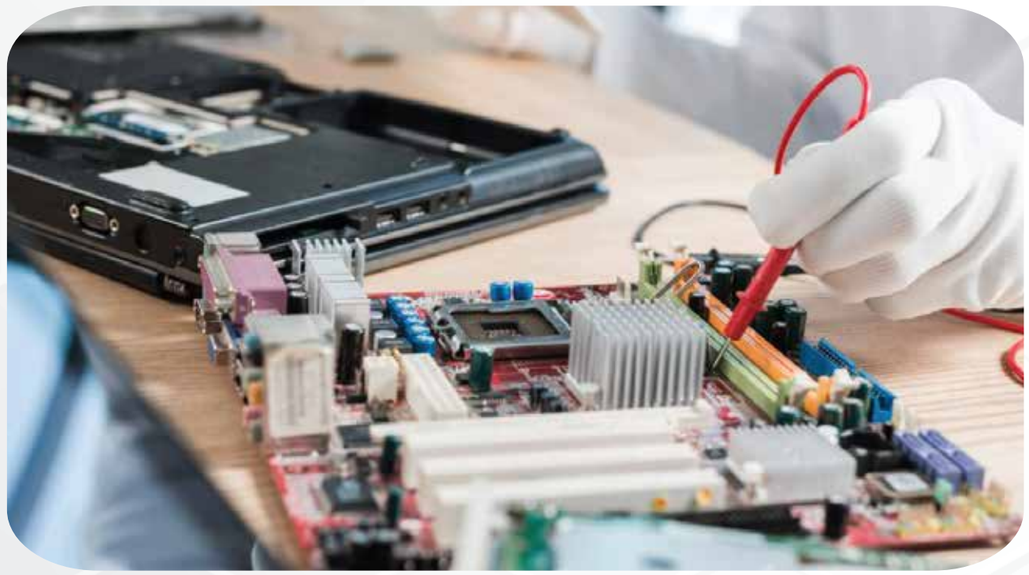
FR/ABS:
- Application: hand phones housing; scanners; hard disk drives; laptop housing

FR; 30% GF; 30% GF+FR/PA6/PA66:
- Application: electrical/electronic components; automotive components; connectors

FR; 10-15% GF+FR/PC:
- Application: electrical/electronic components; automotive components; business machines

Flame Retardant Compound:

- This is Dai A's line of flame retardant compounds with FR UL94 ratings from V-2 to V-0 at 1.6mm and 0.8mm thickness mainly for electrical applications such as circuit breaker, socket backplate, electrical bobbin etc. Besides the flammability concerns, our engineers also formulate FR compound to meet other stringent properties such as flow characteristics, thermal stress, excellent impact strength by incorporating additives and/or fillers. FR compound can also be coloured to meet stringent aesthetic requirements.
- Processing: Injection molding



Function Compound

Brings additonal functions for the final product such as: Flame Retardant, Conductive, Anti-UV, Anti-scratch...

Conductive; 15% carbon fiber/ABS:
- Application: automotive; electrical packaging; electrical parts; tapes
- Surface resistivity: 10^3-10^5 ohms (ASTM D257)

HIPS Conductive:
- Application: automotive; industrial parts; PCB board storage rack; IC trays and tweezers
- Surface resistivity: 10^3-10^5 ohms (ASTM D257)

PP Conductive/ PC Conductive:
- Application: automotive; electrical/electronic parts; industrial parts
- Surface resistivity: 10^3-10^5 ohms (ASTM D257)

Conductive & Static Dissipative Compounds:

- This is Dai A's line of conductive and static dissipative compounds by incorporating electrically conductive and/or reinforcing filters such as carbon fiber to produce compound with its resistivity range from 100 to 1000 ohms/sq mainly serving the electronic packaging and business machines markets. The key features of Electroblend compounds are to protect against static buildup and to insulate against current leakage. Typical applications are IC chips tray, tweetzer, conductive pallet, carrier tape and other plastic tool for using in electronic components factories.
- Injection molding

Function Compound

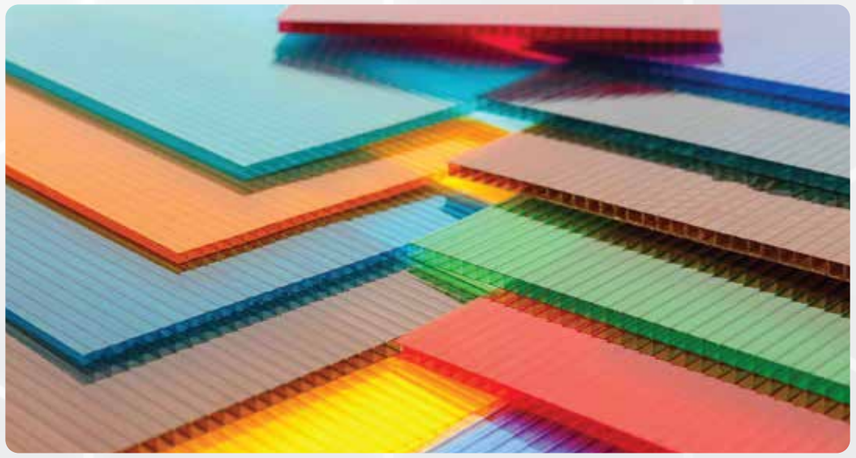
Brings additonal functions for the final product such as: Flame Retardant, Conductive, Anti-UV, Anti-scratch...

Anti scratch PET/ PBT/ PLA:

- Provides friction reduction, improved processing efficiency, mold release, anti-scratch and easier stretching in biaxial orientation and blow molding..
- Application: automotive, biopolymers, composites, engineering plastics, wood polymer composites...

Anti scratch PC:

- Friction reduction additive is designed, specifically for polycarbonate, for easier processing in sheet and glazing applications. This product provides essential reduction to surface friction as an internal lubricant as well as improving mold release properties.
- Application: automotive, engineering plasics, panel...

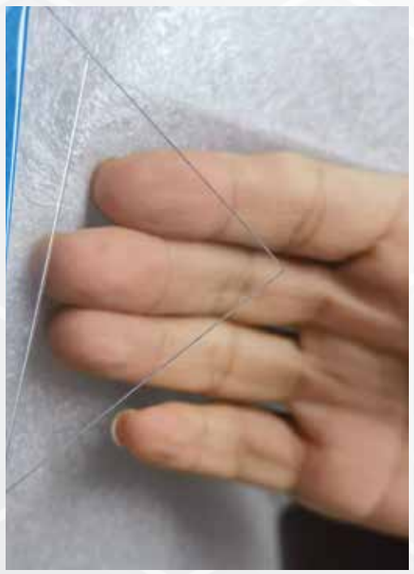


Anti-Scratch Compound

Anti-scratch additives are gradually being used more due to the need to increase plastic durability and better aesthetics. Dai A's anti-scratch compound with special additives will reduce the possibility of scratches on the surface, providing an improved appearance and increasing the life of the product.

Some properties and applications:

- Reduces scratch width & whiteness, improves scratch smoothness
- Increased oxidation stability, less odor
- Maintains high stability, little expansion when exposed to heat and UV rays
- Application for production of household appliances, cosmetic packaging and electronic devices...



Bio-Degradable Compound

Test Report - Products

TÜVRheinland®
Precisely Right.

Test Report No.: **244534985a 001** *Page 1 of 41*

Client:	**Dai A Industry Joint Stock Company**
Contact Information:	Luong Son Industrial Zone, Highway 6, Hoa Son Commune, Luong Son District purchasing@daiaplastic.com
Identification/Model No(s):	BIODEGRADABLE COMPOUND
Sample Receiving Date:	2023-08-03
Sample Obtaining Method:	Sending by customer
Condition at Delivery:	Test item complete and undamaged
Testing Period:	2023-08-03 to 2024-05-30
Place of Testing:	Chemical laboratory Shanghai& Kunshan, Toys laboratory Shanghai

Test Specification:	***Test Result:***
With reference to ASTM D6400-23 / EN 13432: 2000 / EN 14995:2006 / ISO 18606:2013, Testing according to customer's specification for the following parameters:	
Heavy Metals and Other Toxic Substances	Pass
Qualitative Identification by Fourier Transform Infrared Spectroscopy	Please refer to page 5
Thickness Check	Please refer to page 6
Aerobic Biodegradation Test	Pass
Quantitative Aerobic Disintegration Test	Pass
Plant Test	Pass

Other Information:

Country of Origin: Vietnam

Procedure No: 3393449

For and on behalf of
TÜV Rheinland (Shanghai) Co., Ltd.

2024-05-31 *Lucy Lu/Assistant Technical Manager*
Date *Name/Position*

Sample information is provided by customer. Test result is drawn according to the kind and extent of tests performed. This test report relates to the above mentioned test sample. Without permission of the test center this test report is not permitted to be duplicated in extracts. This test report does not entitle to carry any safety mark on this or similar products. "Decision Rule" document announced in our website (https://www.tuv.com/landingpage/en/qm-gcn/) describes the statement of conformity and its rule of enforcement for test results are applicable throughout this test report.

TÜV Rheinland (Shanghai) Co., Ltd. Shanghai TÜV Rheinland Building, No. 177, Lane 777, West Guangzhong Road, Jing'an District, Shanghai 200072, P.R. China
Tel.: +86 21 6108 1188 Fax: +86 21 6108 1099 Mail: service-gc@tuv.com Web: www tuv.com

Dai A's eco friendly Compound are produced by mixing CaCO3 powder with polylactic acid polymer (PLA) or Polybutylene Adipate Terephthalate (PBAT). They will decompose in the environment and release: CO2, water and CaCO3 biomass. More and more products use this environmentally friendly plastic compound nowadays. Applications include knives, cups, plates, bags, cosmetic bottles...

Properties:

- Good processing when dried properly (moisture < 0.1%)
- Does not produce harmful emissions
- Good printability without pre-processing
- Good adhesion
- Meets the requirements for degradable polymers: DIN EN 13492 and ASTM D6400
- Large quantities can be stored in dry silos

Applications:

- Blowing film: supermarket bags, nursery bags, agricultural mulch films...
- Injection molding: spoons, forks, knives, cups...
- Thermoforming: boxes, trays, cups...
- Pipe extrusion: various types of suction pipes.

Customize Compound

Dai A's Compound is produced from virgin plastic, colorants and additives in certain proportions to meet customers' production needs. Manufacturers can use it directly in the production process without adding any other additives..

Professional R&D Department
Highly specialized research and development team to constantly improve products to meet the most stringent requirements of the market.

Fully Complete Product Development & Measuring Equipment
Includes a full range of sample product development machines, measuring and analyzing product parameters.

High Tech Production System
10 production lines with all twin screw extruders, good material mixing ability, high efficiency. Total maximum capacity reaches 15,000 tons/month.

The above outstanding advantages and high practical applicability show why you should use Dai A's plastic compound. Especially in high-tech products, requiring many features and uniformity for the end product quality.
Please contact us for the best technical support and receive a completely free sample!

Solutions For Your Products!

Global Manufacturer

Over 10 years of product development and branding, Dai A has built up customer-partner relationships with hundreds of domestic enterprises and from 84 countries around the world.

Sales Volume:

- In 2022: reach 41,200 tons / revenue 31 million USD
- In 2023: reach 46,100 tons / revenue 35 million USD

Ratio:

- International export business reached 65% of sales.
- Domestic business in Hanoi 15% of sales
- Ho Chi Minh City branch 20% of sales

International Quality

DAI A's products are guaranteed to meet quality control and inspection standards:

- **ISO 9001 : 2005**
- **TUV REPORT**
- **REACH CERTIFICATE**
- **U.S F.D.A C.F.R**

We regularly participate in International fairs on Plastic - Rubber - Packaging industry. This is an important activity in Dai A's development goal. To help bring our leading products and services around the world.

Some fairs Dai A has participated in recently:

Chinaplas
2018 - 2023

Indo Plas
2022

Arab Plast
2019

I-Plast
2018

East Africa
2017

K Fair
2016

In addition to the above activities, we always welcome customers and partners in the plastics, packaging industries to visit our Factory. Looking forward to a bright future, that we all co-operate, to develop and prosper!