



REPORT OF WPC MACHINERY



COMPANY PROFILE

- Qingdao JBD Machinery Co., Ltd. is a comprehensive corporation integrating scientific research and development, manufacturing, technological innovation (consultation).
- We provide the highest technical value ; strict testing as the development direction to our customers. We has developed lot kinds of plastic machine, such as plastic board/sheet machine, plastic pipe machine, plastic profile machine, WPC machine, plastic recycling machine, etc.





WPC PRODUCTS DISPLAY





INTRODUCE OF WPC

Definition

Difference of WPC

Wood Powder Source

Material of WPC

Advantage of WPC



DEFINITION

Wood Plastic Composite (WPC)

Any composite that contains
wood & thermoset or
thermoplastic

Thermoset : Epoxy , Phenolics

Thermoplastics: PE, PP, PVC, etc



DIFFERENCE OF WPC

PE wood-plastic composites

With the addition of the coupling agent, the flexural strength of HDPE / Wood Flour Composites, tensile strength significantly improve functional monomer species and the basis of the type of resin has an impact on the mechanical properties of the composites; maleic anhydride, acrylic increasing Yung effect, maleic anhydride grafted polyethylene (MA-PE) the compatibilization effect is more pronounced than the maleic anhydride-grafted polypropylene (MA-PP), maleic anhydride grafted polyethylene (MA-PE) can effectively improve elongation at break of the composite material; with increasing added amount of MA-PE, a tensile modulus of the material does not change significantly, while there is significant increase in flexural modulus.

The bending strength of the composite material is improved, the increase of the flour content, the impact strength decreases with increasing the content of the wood flour; bending strength decreased significantly with the wood powder particle size decreases, while the impact strength first increased with decreasing the wood flour granularity then decreased; the interfacial compatibilizer effective improve the performance of the material.

PP based wood plastic composites

PP based wood plastic composites is also one of the focus of the study. Much has been reported in the literature inorganic fillers such as talc, wollastonite, calcium carbonate filled modified PP. Results show that the modified PP inorganic filler can improve the tensile strength and flexural strength, but the increased brittleness, toughness decreases, and expressed as elongation at break, impact strength, respectively, have different degrees of reduction; to the wood fibers as a filler materials modified PP can be obtained good mechanical properties of the composite material.

PVC-based wood-plastic composite materials

Chlorine atom-containing PVC material shows the acidic molecular chain containing hexanoylamino chitosan was alkaline, and the two form a good combination, hexanoylamino group can also react with hydroxyl cellulose. Chitosan molecular chain containing more hexanoylamino, 0.5% chitosan added, so that the bending strength of the composite material increased by 20%, a 16% increase in the flexural modulus, the storage modulus of the composite material to improve 33%, to achieve the same reinforcing effect, but also adding 6% of chitin.



WOOD POWDER SOURCE





MATERIAL OF WPC

Take "PE + wood" for example

PE raw material



PE recycled material



WPC



Wood powder



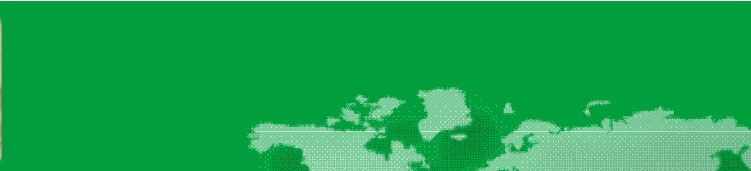
Chemical auxiliary



ADVANTAGE OF WPC

- **Hollow profiles have less weight**
- **100% Recycling possible in the process**
- **Weather and UV resistance splinter proof**
- **Better dimensional stability than solid wood and plastics**
- **Longer life time, five times longer than wood**
- **Less time and costs for maintenance and cleaning**
- **Less slippery as timber decking (higher anti-slip class for WPC)**
- **More design and colors' available**
- **No association with toxic chemicals**
- **insect prevention, anti-fire/water, antimoth, no poison no pollution**





Performance Comparison With Other Material

| Item | WOOD | STEEL | PLASTIC | WPC |
|---------------------------------------|---------------------|------------------------|---------------------------------|-------------------------------|
| density:g/cm ³ | 0.8-1.1 | 7-8 | 0.9-1.0 | 0.7-1.2 |
| rigidity | higher | high | low | higher than wood and plastic |
| machinability | easy | not easy | not easy | easy |
| durability | Limited(corrosive) | Limited(corrosive) | higher | High(7-10times than wood) |
| water absorption | high | non | non | non |
| aging resistance (sunlight) | good | good | bad | good |
| Acid and Basic Resistance | bad | bad | good | good |
| Resistance to environmental pollution | bad | not so good | good | good |
| Repair Frequency and difficulty level | high and convinient | low and hard to repair | low and impossible to repair | low and convinient |
| recycling possibility | bad | bad | recycle will reduce performance | 100% recycle |
| waste material treatment | retrieve by charge | hard to retrieve | lower price into waste market | old-for-new service available |
| operating safety | bad | not so good | good | good |
| Structure size flexibility | high | low | low | highest |



INTRODUCTION OF WPC MACHINE

WPC OUTDOOR DECKING MACHINERY

1. Wood milling machine

2. mixer (wood and plastic and additives)

3. PP/PE + wood granulator machine line

4. SJMS-65/132 WPC Extrusion line

5. SWP-360 Crusher (crusher the waste final products and second using extrude again)

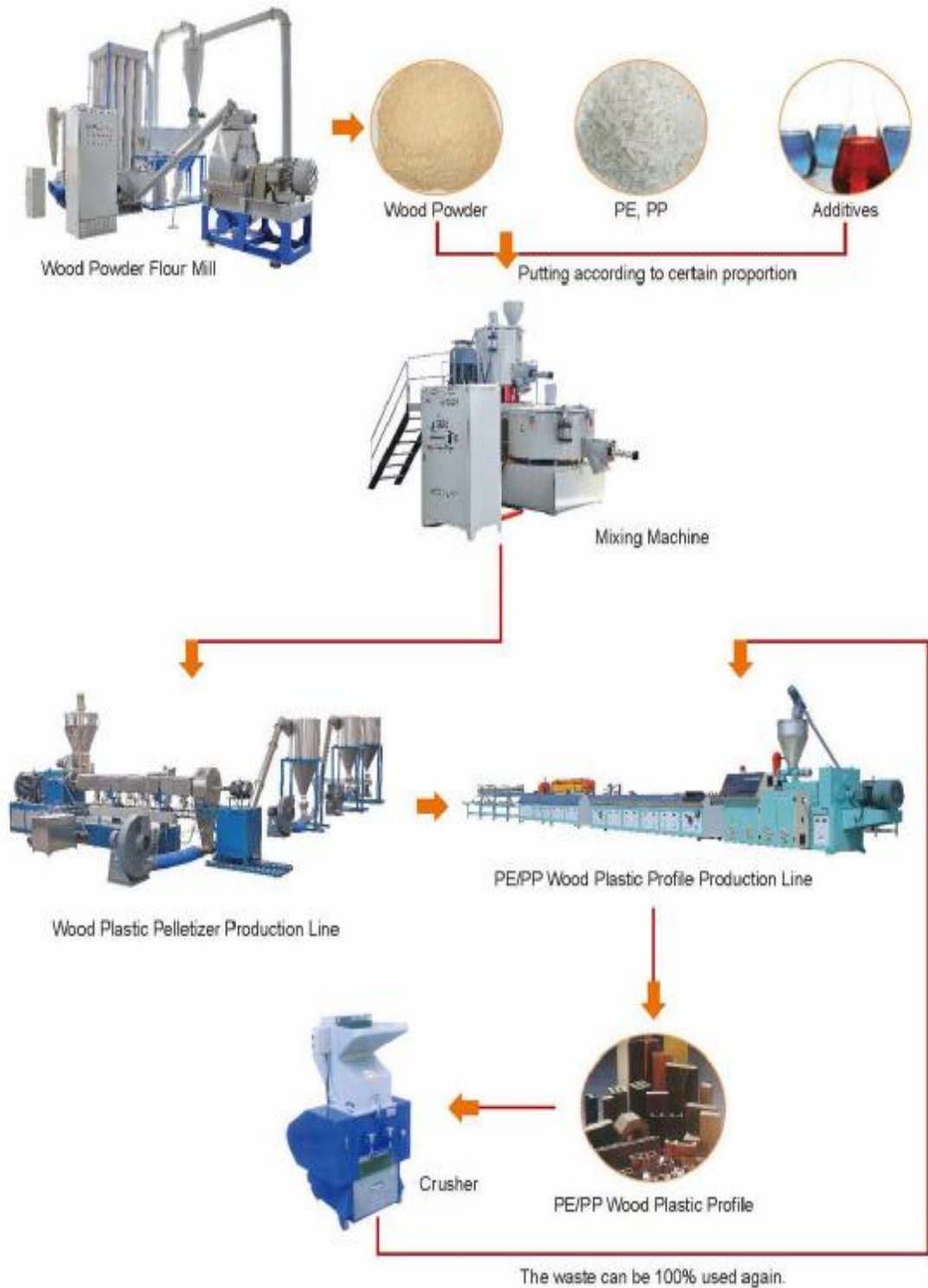
6. Sanding machine

7. Embossing machine

8. Brushing machine



Flow Chart of PE/PP Wood Plastic Profile Product





WOOD PROCESS MACHINE

To reach up 80-120 mesh wood powder with water content lower than 10%

WOOD GRINDER MACHINE



WOOD POWDER MAKING MACHINE



WOOD POWDER DRYING MACHINE





MIXER

To mixing wood powder with Plastic material





PE WPC GRANULATOR LINE

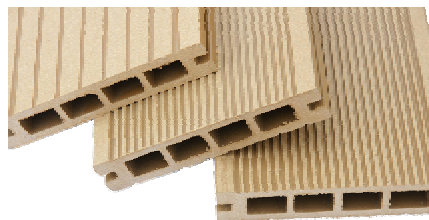
To make mixed plastic material and wood powder to granule





PE WPC EXTRUSION LINE

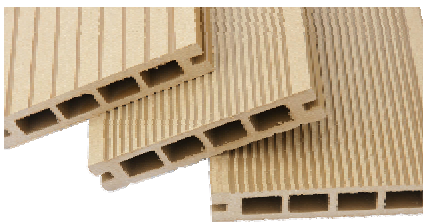
To produce WPC products





CRUSHING MACHINE

To crusher waste WPC products, so it can re-use



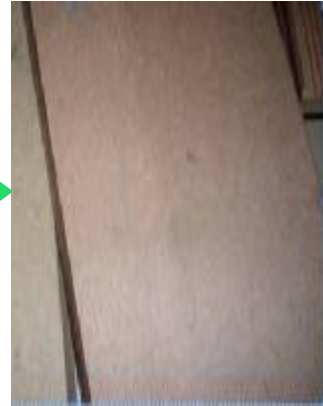
IT CAN RE-USE BY WPC EXTRUSION LINE



WPC PRODUCTS POST PROCESS

These device is suitable to post process of PE + wood products

SANDER



NAPPING BRUSHING MACHINE



EMBOSSING MACHINE





TURNKEY PROJECT OF 200KG

Take the machinery to produce "PE + wood decking" for example

Wood powder process machine

200/500 Mixer

JBD-65parallel PEWPC granulator machine line

JBD-65/132 WPC PP/PE Profile machine line

SWP360 crusher

Sander

Napping brushing machine

Embossing machine

Mould Dies (4 types) decking board, Josit, and two Wrap concers



The cost of this turnkey project USD 178000 (including 4 mould dies)

With capacity 4.5 ton per day (24 hours)

Power need 1780KW per day (24 hours)

With 8 worker per shift (at least one skill worker, if 8 hours per shift, then 3 skill worker, and 21 other workers)

The space needs about 500M2 (including space to all the device, and also space for raw material, end products, etc)

FYI, the cost of raw material (WPC granule with waste PE) in China is about USD 600-740 per ton, and it can sell at around USD 1150-1400 per ton

Note: all above information and price are only for reference, if any more question, pls contact us by email: sales@jbd-china.com



WPC PRODUCT INSTALL



KTW12284



KTW12285



KTW12327



KTW12328



KTW12329



KTW12677



KTW12678



KTW12679



KTW12680



KTW12682



KTW12683



KTW12685



WPC PRODUCT FITTING

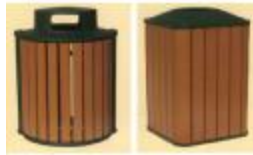
| 型号 Code | Decking board | 地垄 Josit | 封边 Wrap corner | 连接配件 Clip | 表面处理 Optional decking finish |
|---------------------------|---------------|-------------------------|--|--------------|---|
| ESD 145-25 145×25 (mm) | | ESJ 40-25 40×25 (mm) | ESC 57-10 57×10 (mm) ESC 40-40 40×40 (mm) | | 拉丝 Brushing 打毛 Sanding |
| ESD 135-25 135×25 (mm) | | ESJ 40-25 40×25 (mm) | ESC 57-10 57×10 (mm) ESC 40-40 40×40 (mm) | | 拉丝 Brushing 打毛 Sanding 压花 Embossing 压花 Embossing |
| ESD 125-23 125×23 (mm) | | ESJ 40-25 40×25 (mm) | ESC 57-10 57×10 (mm) ESC 40-40 40×40 (mm) | | 拉丝 Brushing 打毛 Sanding 压花 Embossing 压花 Embossing |
| ESD 150-25 150×25 (mm) | | ESJ 40-25 40×25 (mm) | ESC 57-10 57×10 (mm) ESC 40-40 40×40 (mm) | | 拉丝 Brushing 打毛 Sanding |
| ESD 146-31 146×31 (mm) | | ESJ 40-25 40×25 (mm) | ESC 57-10 57×10 (mm) ESC 40-40 40×40 (mm) | | 拉丝 Brushing 打毛 Sanding 压花 Embossing 压花 Embossing |
| ESD 139-23 139×23 (mm) | | ESJ 40-25 40×25 (mm) | ESC 57-10 57×10 (mm) ESC 40-40 40×40 (mm) | | 拉丝 Brushing 打毛 Sanding 压花 Embossing 压花 Embossing |
| ESD 145-23 145×23 (mm) | | ESJ 40-25 40×25 (mm) | ESC 57-10 57×10 (mm) ESC 40-40 40×40 (mm) | | 拉丝 Brushing 打毛 Sanding 压花 Embossing 压花 Embossing |
| ESD 292-23 292×23 (mm) | | ESJ 40-25 40×25 (mm) | ESC 57-10 57×10 (mm) ESC 40-40 40×40 (mm) | | 拉丝 Brushing 打毛 Sanding 压花 Embossing 压花 Embossing |
| ESD 140-25 140×25 (mm) | | ESJ 40-25 40×25 (mm) | ESC 57-10 57×10 (mm) ESC 40-40 40×40 (mm) | | 拉丝 Brushing 打毛 Sanding 压花 Embossing 压花 Embossing |
| ESD 146-25 146×25 (mm) | | ESJ 40-25 40×25 (mm) | ESC 57-10 57×10 (mm) ESC 40-40 40×40 (mm) | | 拉丝 Brushing 打毛 Sanding 压花 Embossing 压花 Embossing |

可选颜色
Available Colours





WPC PRODUCT APPLICATION





WHY CHOOSE JBD

A TECHNICAL TOTAL SOLUTION PROVIDER

- We believe that support is an integral part of a successful and long-term relationship with our customer. Once we deliver the machine and have it up and running for you, we are still here to make sure it stays that way. Low customer downtime is a performance indicator that we measure ourselves by, and we work hard to over deliver on the service reliability levels we have agreed to.
- To understand support and maintenance is to look at the bigger picture, starting from the conception and following through the running life of the machine. We take a disciplined approach upfront and funnel knowledge and techniques from research and our long experience to drive higher quality into the final product. Our approach to building has been based on open systems and commoditized hardware in part by customer's desire to stay competitive. Driving quality at every step of the way and providing easy maintenance creates a more productive customer in the long-term.
- We provide a single service contact point for all customer communication, and in case of an issue, our goal is to get you as fast as possible to an engineer responsible for your machine. Catering to the international market has given us great experience in how to handle diverse types of communication with care and precision. We are eager to provide consultation on usage and clear up any possible misunderstandings. In the real crucial cases is where we shine. Our team collects all the necessary data on the issue fast, and gets together with other experienced engineers in an urgent service meeting. They analyze and devise a plan of action to immediately correct the situation. We understand that communication is sometimes not enough, and we are always prepared to fly out our team and work with you on site, to implement a solution.



The future of wood plastic composites will ultimately depend on many factors; including new product identification, product quality, consumer perception & performance of these materials !

GO GREEN WORLD

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