J.C.P

International Pvt. Ltd.

LITHIUM BATTERY RECYCLING LINE

Our Vision, Mission & Objectives

Vision

JCP International Pvt Ltd's corporate vision cycling facilities globally. We are dedicated to protecting our planet and improving the health and well-being of our and is to revolutionize e-waste management by establishing the most advanced and eco-friendly recycling facilities globally. We are dedicated to protecting our planet and improving the health and well-being of our communities by turning waste into valuable resources, fostering sustainability, and promoting environmental stewardship.

Mission

To serve the cause of environmental protection through our eco-friendly, innovative, and economic e-waste recycling solutions. Our vision is to provide unique and high-quality beauty and health care products to our consumers while enhancing our business activities. We focus on new and innovative business ideas to meet the changing needs and desires of our clients and consumers, all while respecting and protecting the environment.

Objectives

1. Profitability
Focus on controlling costs in both production and operations while maintaining to the profit margin on products sold.

2. Productivity
To provide all of the resources our employees need to remain as productive as possible.

3. Customer Service
Provide high standard products to our customers to full filling their needs and desires.

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About Us ?

- J.C.P. International Pvt. Ltd., a trusted name since 2009, has carved a niche in the organic and natural products space. We're a leading manufacturer and exporter committed to promoting health and sustainability.
- Our diverse product range encompasses organic extra virgin coconut oil, pure coconut oil, desiccated coconut powder, organic groundnut oil, and extends to personal care products like hand sanitizers and aloe vera gel.
- We prioritize the highest quality standards, ensuring our products are organic, free from harmful chemicals, and consistently reliable.
- Our commitment extends beyond quality. We champion sustainable practices throughout the supply chain, from sourcing to production, and are dedicated to providing exceptional customer service. With a state-of-the-art manufacturing facility in Kutiyana, Porbandar, India, and a global reach,
- J.C.P. International is your ideal partner for organic and natural excellence. Contact us today to explore how we can elevate your business with premium, sustainable products.
- We are Manufacturer, Exporter, Wholesaler who have various brands in Gujarat, Mumbai, New Mumbai, Dubai, Hong Kong, Australia, and many other.

Factory Address: J.C.P. International Pvt. Ltd.
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E-Waste – Market Overview

Global Market

- Rapid Growth: According to Allied Market Research, the global e-waste management market was valued at $57.8 billion in 2022 and is projected to reach $244.6 billion by 2032, indicating a substantial market driven by the need for efficient e-waste management solutions.
- Low Recycling Rates : Despite the large volume, only a fraction gets recycled responsibly. In 2022, just 22.3% (roughly 14 million metric tons) of e-waste was documented as collected and properly recycled.

Government E-Waste Policies

- Policy Push for Responsible Management: The Indian government's E-waste (Management) Rules – 2016 play a crucial role. These rules mandate collection by authorized dismantlers and recyclers only, promoting responsible e-waste management.
- Producer Responsibility: The policy emphasizes Extended Producer Responsibility (EPR), making producers accountable for ensuring their products reach authorized end-of-life processors.

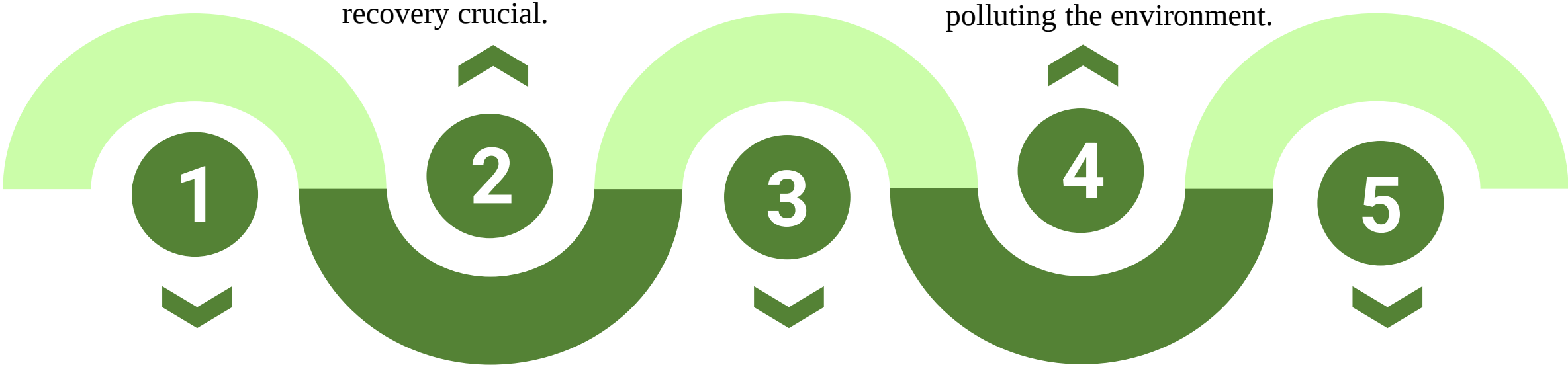
Indian Market

- India is the world's third largest generator of e-waste, estimated to produce around 3.2 million tonnes annually. This number is expected to reach 5 million tonnes by 2030. Only a small fraction, around 5% of India's e-waste is recycled formally each year . The rest is often dismantled by informal recyclers in unsafe and environmentally hazardous conditions
- The Indian e-waste management market is projected to reach $5.2 billion by 2032, indicating a significant growth opportunity due to the increasing demand for proper e-waste disposal

Sustainable Future

- Circular Economy: Emphasis on designing products for longer use, repairability, and recyclability.
- Green Initiatives: Increasing investment in sustainable recycling technologies and infrastructure to boost e-waste management efficiency.

India faces a massive e-waste problem:



Recover valuable resources: E-waste holds gold, copper, and other valuables critical for electronics manufacturing.

Limited resources, big demand: India lacks key minerals found in electronics, making proper e-waste recovery crucial.

Formalize & create jobs: A well-regulated e-waste sector can generate jobs in collection, processing, and refurbishment.

95% informally processed: Most e-waste (millions of tonnes annually) is handled by the informal sector, harming workers and polluting the environment.

Global market potential: The global e-waste recycling market is projected to reach nearly $50 billion by 2027.

This crisis presents a golden opportunity:

Unorganized E-Waste Segment in India

1

•**Registered Recyclers**: 180-200, many store e-waste in hazardous conditions.

2

•**Informal Sector**: Processes 95% of e-waste using crude methods. This sector often employs crude methods, resulting in substantial health and environmental hazards.

3

•**Environmental Impact**: 80% of e-waste breakdown pollutes water and soil; untreated e-waste often ends up in landfills. Untreated e-waste frequently ends up in landfills, exacerbating the pollution problem.

4

•**Precious Mineral Deficiency**: High, necessitating efficient resource recovery. There is a need for a well designed, robust and regulated E-waste recovery regime

Need for Lithium Battery Recycling

There are significant challenges in disposing of lithium batteries cost-efficiently and environmentally friendly.

- Lithium-ion battery recycling is projected to be a $1,000 million opportunity in India by 2030

Scarcity and Expense of Lithium

Lithium is a rare and expensive mineral, making recycling essential.

Immense Opportunities

The recycling of lithium-ion batteries offers significant opportunities.

Dependence on Lithium-Ion Batteries

Consumer electronics and EV vehicles heavily rely on lithium-ion batteries for energy storage.

Global Penetration and Growth

Increasing penetration of lithium batteries globally due to growing digitization and gadget usage.

Health and Environmental Hazards

Untreated used batteries pose severe health and environmental risks.

Market Growth & Opportunity

Lithium-ion battery market growth:

- 132 GWh by 2030, up from 2.9 GWh in 2018
- 35.5% CAGR
- 140 million EVs predicted on the road worldwide by 2030.
- 148% growth in EV vehicles in India across 2, 3, and 4-wheeler segments from 2017 to 2019.

Recycling Gap:

- Less than 5% of lithium-ion batteries are currently recycled worldwide.
- 11 million tonnes of lithium-ion batteries are expected to reach the end of their service lives between now and 2030

Transform Your Battery Scrap into Valuable Resources

18650 Round Lithium Batteries

Cell Phone Lithium Batteries

Aluminum Case & Soft Pack Lithium Batteries

Positive and Negative Plates

If so, you need our comprehensive and professional battery recycling line. Our state-of-the-art recycling solutions help you convert battery scrap into valuable resources efficiently and sustainably. Join us in making a positive impact on the environment while maximizing the value of your battery waste.

Advanced Recycling and Treatment for Waste Lithium Batteries

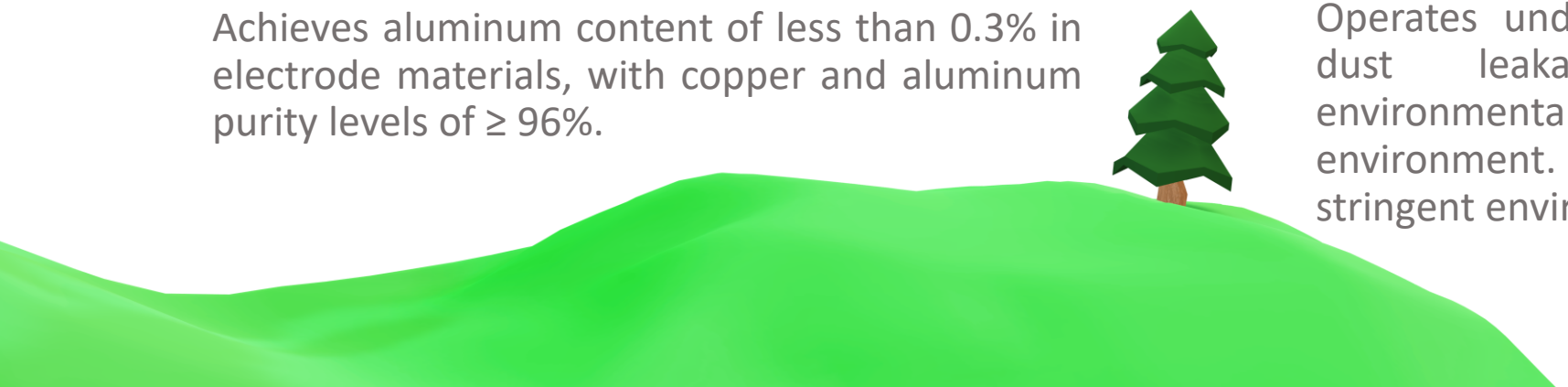
Our cutting-edge recycling equipment for waste lithium batteries offers a high degree of automation, making it easy to scale for industrial use. The automated processes ensure a recovery rate of over 99% for valuable components. This recycling line not only delivers significant environmental benefits by reducing waste and pollution but also offers substantial economic advantages by recovering and repurposing valuable materials.

1 Separation Efficiency:

Effectively separates aluminum, copper, and electrode materials from discarded battery plates.

2 High Purity:

Achieves aluminum content of less than 0.3% in electrode materials, with copper and aluminum purity levels of ≥ 96%.



3 Comprehensive Systems:

Includes crushing, sorting, conveying, air purification, and automatic control systems, all supported by a central dust removal system.

4 Clean and Safe Operations:

Operates under negative pressure to prevent dust leakage, ensuring a cleaner, environmentally friendly production environment. Dust emission levels meet stringent environmental standards

Lithium Powder

Copper Granules

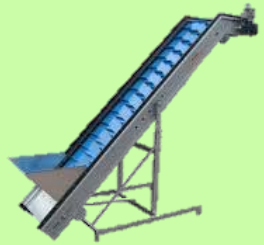
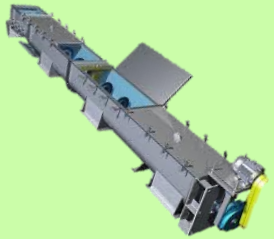
Aluminum Granule

Graphite Powder

Battery Film

Output Products and Waste Management

Our advanced recycling process yields five valuable materials: black powder, copper powder, aluminum powder, iron, and diaphragm, all of which can be fully recycled. The aluminum content of the recovered electrode materials is less than 0.3%, and the copper and aluminum purity is ≥ 96%. Approximately 10% of the output is non-usable; however, we have efficient waste management strategies in place. The electrolyte, accounting for 6% of the waste, is treated in a catalytic combustion furnace, converting it into harmless carbon dioxide and water, ensuring no harmful waste is produced. This comprehensive approach not only maximizes resource recovery but also minimizes environmental impact.

Item Name	Parameters	Quantity	Remark	Picture
Feeding Conveyor	Model: PD-600x5000 Belt Width: 600 mm Conveyor Length: 5000 mm Feeding Speed: Adjustable (range 0.1 - 1.0 m/s) Maximum Load Capacity: 200 kg Motor Power: 2.2 kW Voltage: 380V / 50Hz Conveyor Angle: Adjustable (0° to 20°) Material of Belt: PVC or Rubber Operating Temperature Range: -10°C to 60°C Control System: Automated with PLC integration	1	The main frame is made from robust profiles with an inner guide plate to prevent material jams and belt damage, ensuring reliable and efficient operation.	
Double shaft shredder	Model: SSJ-800 Dimensions: 2880x1950x1860mm Crushing chamber size: 800x600mm Blade specification: 300x25mm Blade material: 9CRSI Blades teeth quantity: 28 pieces Blades quantity: 32 pieces Spindle material: 42CRMO (forged and tempered) Reducer model: JZQ-500 Reducer quantity: 2 sets Motor power: 22kw +22kw Motor quantity: 2 sets	1	It is designed for primary crushing, effectively pre-crushing and discharging batteries. This facilitates subsequent processing steps by breaking down large materials into smaller, manageable pieces, ensuring smooth and efficient operation throughout the recycling line.	
Fully enclosed feeding conveyor	Model: PD-600X6000 Conveyor belt material: rubber annular belt Conveyor belt thickness: 6mm Conveying speed: 30m/min Effective conveying width: 500mm Power: 2.2kw	1	he main frame is made of profiles, with a guide plate on the inner side to prevent materials from getting stuck in the conveyor roller and piercing the conveyor belt. Fully enclosed overall, equipped with a visual window and negative pressure ventilation interface.	
Secondary crusher	Model: FSJ-800 Dimension: 2400 x1200x1400mm Rotational Speed: 1440 RPM Hammer material: S45C (quenching heat treatment) Hammer blades quantity: 60pieces Power: 45kw Dust Removal Efficiency: 99.5%	1	Facilitates efficient fine crushing, optimizing material preparation for subsequent recycling processes.	

Item Name	Parameters	Quantity	Remark	Picture
Cyclone feeding device	Model: XF-800 Cylinder diameter: 800mm Cylinder height: 2000mm Power: 7kw +0.75kw	1	Efficiently integrates material supply and dust collection, ensuring dust-free transportation and minimal product damage.	
Fully enclosed drum screen	GTS-1560 Diameter: 1500mm Length: 6000mm Structure: Fully enclosed with visible observation holes Motor power: 3kw	1	Ideal for precise size screening, the GTS-1560 effectively separates materials, enabling the extraction of powder from iron, diaphragm, and electrode plates. Simplifying the sorting process, it enhances efficiency in material handling operations.	
Air Sorter	Model: FXJ-2600-3 Motor power: 36kw	1	Utilizing a sealed negative pressure system, the FXJ-2600-3 Air Sorter efficiently separates lightweight materials, suspending them for removal, while allowing heavier materials to descend into the silo.	
Cyclone powder collector	Model: XF-1000 Motor Rating 3-6 HP Fan Speed 1000-2000 rpm Cylinder diameter: 1000mm Cylinder height: 2600mm Fan power: 5.5kw +1.5kw	1	Efficiently integrates material supply and dust collection, ensuring no dust overflow during transportation, thus minimizing product loss.	
Tertiary crusher	Model: FSJ-800 Boundary dimension: 2400x1200x1400mm Hammer material: S45C (quenching heat treatment) Hammer blades quantity: 60 pieces Power: 45k	1	It is used for fine crushing of materials, facilitating subsequent sorting	

Item Name	Parameters	Quantity	Remark	Picture
Rotary vibrating screen	Model: XZS-1500 Sieve surface diameter: 1500mm Number of layers: 1 Motor power: 1.5kw Voltage: 220V/380V Frequency: 50Hz/60Hz Capacity: Up to 6 cubic meters per hour Overall dimensions: 1800mm x 1800mm x 1200mm Weight: Approximately 600kg	1	Rotary vibrating screen provides efficient screening for diverse materials, ensuring precise separation and classification. Its robust design and user-friendly operation make it ideal for various industrial applications, enhancing productivity and quality control.	
High speed eddy current crusher	Model: MFJ-600 Knife disc diameter: 620mm Blade quantity: 60 pieces Cooling method: air cooling/water cooling Spindle speed: 3800r/min Fineness: 10-150 mesh Power: 45kw Circular vibrating screen: 3k Dimension: 1800x1200x1600mm Weight: 1500kg	1	The MFJ-600 High Speed Eddy Current Crusher excels in fine crushing and agglomeration, streamlining subsequent sorting processes with its efficient performance.	
Rotary vibrating screen	Model: XZS-1200 Sieve surface diameter: 1200mm Number of layers: 1 Motor power: 1.1k	1	It is used for screening the black powder.	
Gravity separator	Model: BZS-600 Boundary dimension: 600x1250x1650mm Air volume: 805-1677m³/ Min /15-200uM Vibration frequency: 40-200 Power: 3kw+2.2kw+3kw	1	a versatile machine renowned for its efficiency in separating various materials with precision. Ideal for a range of industries, this model excels in separating copper and aluminum with remarkable accuracy and speed.	
Pulse dust collector	Model: MR-240 Fan power: 30kw Internal efficiency: 99.5% Air volume: 15000m³/ H Power supply: 380V/50Hz Static pressure: 1470-1770Pa Filtering wind speed: 1.1-1.3m/min Outlet emission concentration: 30mg/Nm3	1	Efficient centralized dust removal ensures environmental compliance and prevents dust overflow, guaranteeing a clean and safe operational environment.	

Item Name	Parameters	Quantity	Remark	Picture
Pulse dust collector	Model: MC-64 Air volume: 5000m³/h Total filter area: 51.2m² Filtration wind speed: 0.9-1.5m/min Number of filter bags: 64 pieces Number of pulse valves: 8 Export emission concentration: 30mg/Nm3	1	Centralized dust removal throughout the entire line, no dust overflow, and environmental compliance	
Spray tower	Model: 1800 Voltage: 220v-450v Evaporated Capacity: 25-500 kg/h Diaphragm Pump power: 0.35-30 kw Diameter Of Tower Body: 1300-3800 mm Total Height Of Equipment: 7800-19000 mm	1	The Spray Tower-1800 is a top choice for treating corrosive waste gases, especially in the chemical sector. With its spray liquid absorption method, it achieves over 98% purification efficiency for gases and odors. It's the go-to equipment for high-concentration, high-temperature acid-base exhaust gas purification worldwide.	
UV photo oxygen catalytic integrated machine	Sample Handling Air Volume: 10,000 m3/h Exhaust Gas Purification Efficiency: ≥95% Equipment Resistance: ≤300 Pa Power Supply Voltage: 220V-380V Equipment Power: 6 kW Equipment Noise: ≤45 dB Dimensions (L x W x H): 2000 mm x 1500 mm x 1800 mm Weight: 800 kg	1	Compared with other waste gas treatment equipment, photocatalytic equipment can not only purify organic waste gas, but also disinfect and sterilize. This is due to the strong oxidation of high-energy ozone and ultraviolet radiation, which can destroy the DNA molecular structure of bacterial viruses.	
Machine Frame	-	1	machine frame used for recycling is constructed with robust materials, ensuring durability and stability throughout the recycling process.	
Pipeline	-	1	-	

Features of Our Advanced Lithium Battery Recycling Equipment

State-of-the-Art Crushing and Separation:

- Utilizes advanced mechanical crushing, screening, and separation processes.
- Achieves high-purity sorting of copper aluminum foil and positive/negative electrode powder post-crushing and dissociation.

Energy-Efficient Technology:

- Specialized crushing and dissociation equipment for lithium batteries.
- Significant energy savings with a high separation rate for copper aluminum foil and electrode powder.

Low Energy Consumption:

- Unit energy consumption per ton of lithium batteries is about half that of similar domestic products.
- Equipment processing capacity reaches up to 500 kilograms per hour.

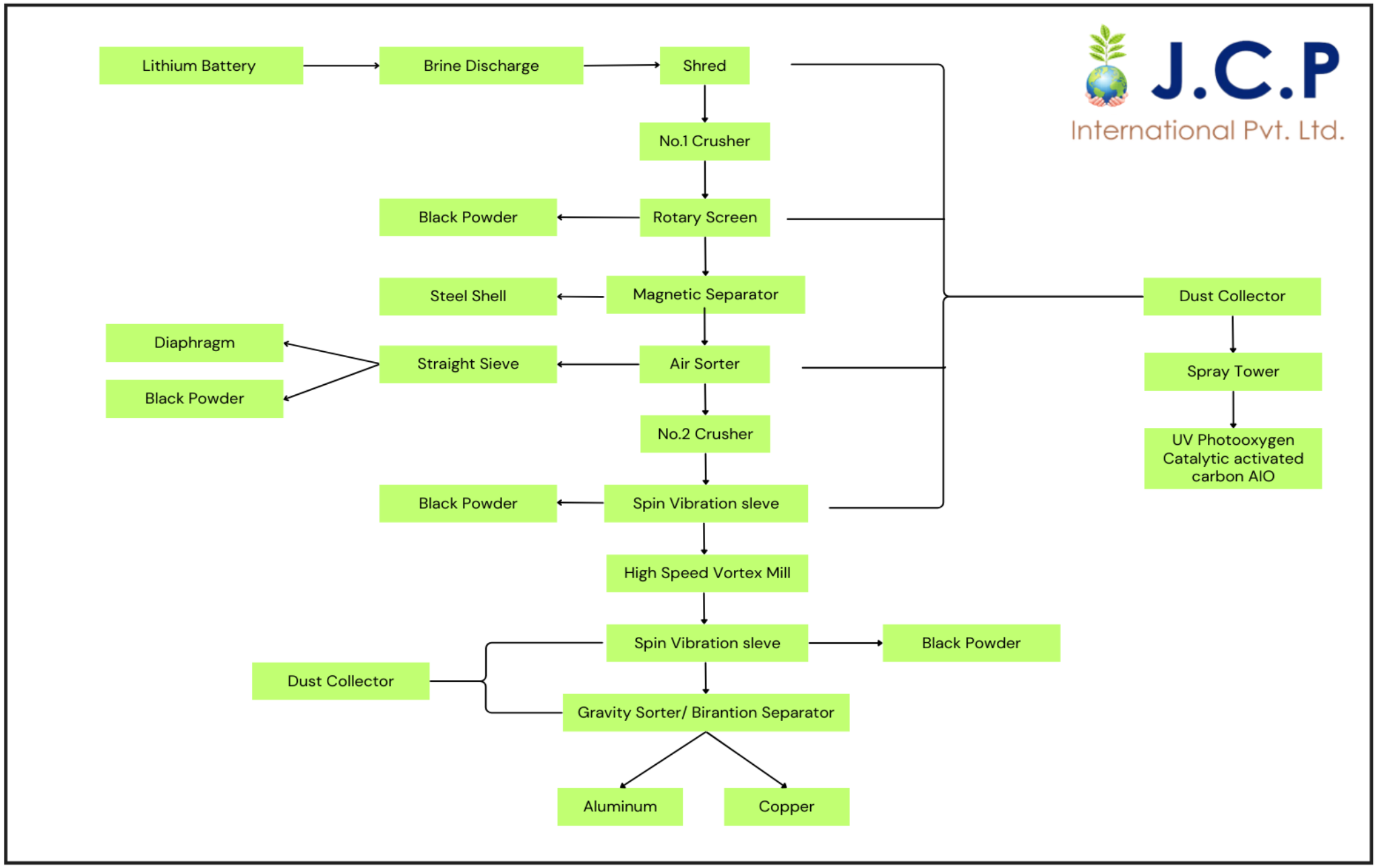
Cost-Effective Solution:

- Selling price is only 1/5 to 1/3 of comparable equipment both domestically and internationally.
- Copper recovery rate is 5% to 8% higher than similar manufacturers.

High Recovery Rates:

- Metal recovery rate: ≥ 99%
- Battery powder recovery rate: ≥ 99%
- Diaphragm recovery rate: ≥ 99%

PROCESSING FLOW CHART



Detailed Analysis

1

Discharge - Brine Soak:

The process begins with discharging the battery by placing it in a container with a sodium chloride saline solution for 48 hours.
This creates a short circuit, discharging the battery and releasing any excess energy.

2

Pre-crusher - Shredder:

The lithium battery is then shredded into pieces measuring about 25mm using a shredder.

3

Pulverized Screening:

- Primary Crusher: The pre-crushed battery undergoes further crushing using a high-speed rotating hammer mill. This reduces the size of the material to less than 10mm.
- Fully Sealed Drum Screen: The crushed material is then transferred to a drum screen. This screen filters the crushed battery parts, allowing qualified battery powder to pass through the screen holes. The recovery rate for battery powder at this stage is about 60%.
- Magnetic Separator: The material on the screen is then passed through a magnetic separator. This separator removes iron shells from the battery material using magnetic attraction.
- Air Sorter: An air sorter separates light and heavy materials using aerodynamics. The lighter diaphragm material is separated and sent to a discharge hopper, while the heavier material is sent for further sorting. The recovery rate for the diaphragm at this stage is about 99%.
- Secondary Crusher: The remaining heavy material is crushed again using a high-speed rotating hammer mill. This further reduces the size of the material to less than 6mm.
- Fully Sealed Drum Screen: The crushed material is then passed through a drum screen once more to filter qualified battery powder. The recovery rate for battery powder at this stage is about 95%.
- High-speed Eddy Current Crusher: This crusher breaks down copper and aluminum materials into granules using a cutting disc and fixed blade.
- Rotary Vibrating Screen: The crushed material is then passed through a vibrating screen to filter qualified materials.
- Specific Gravity Sorting Machine: This machine separates copper and aluminum particles based on their weight. The heavier copper particles settle at the bottom, while the lighter aluminum flakes stay on top. The recovery rate for copper and aluminum at this stage is about 99%.

Mechanical Process

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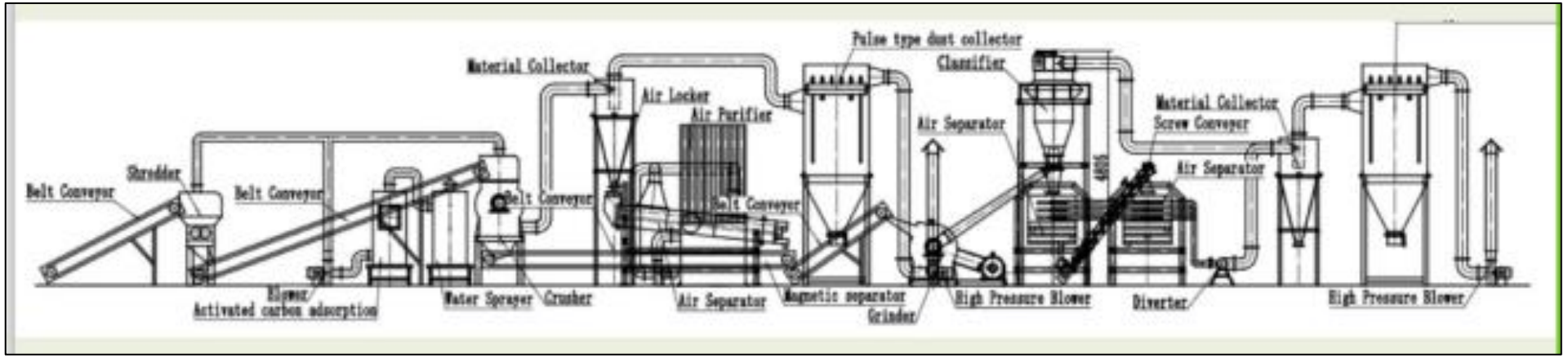
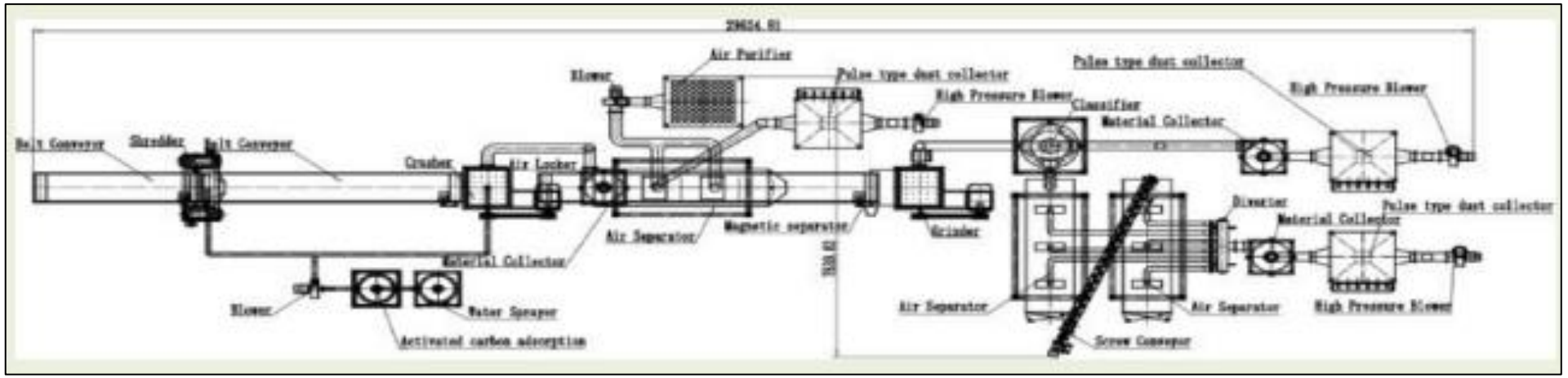
Front View



Top View



Factory Overview

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THANK YOU

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