

融入匠心·敏于创新

TOGETHER WITH INGENUITY & INNOVATION

Combining Ingenuity • Active in Innovation

鑫还宝公司 COMPANY PROFILE

佛山市顺德鑫还宝资源利用有限公司成立于2005年，注册资本人民币9500万元，性质为有限责任公司，所属行业为循环经济、再生资源环保产业。公司拥有两处厂区：旧厂区位于佛山市顺德区伦教永丰工业区工业南路，建筑面积3万平方米；新厂区位于顺德西部生态产业区启动区D-13-4地块，建筑面积8万平方米。鑫还宝公司是广东省“十二五”废弃电器电子产品处理规划重点项目，是经国家四部委（发改委、财政部、环保部、工信部）核定从事废旧电视机、电脑、洗衣机、冰箱、空调、手机、小家电和电器电子产品的回收、拆解、深加工、贵金属提炼与再制造的定点企业。

Foshan Shunde Xinhuanbao Resource Utilization Co., Ltd. established in 2005 with registered capital of 95 million RMB is a limited liability company, belonging to the industry of the circular economy and resource recovery for environmental protection. The company has two plants: the old plant is located at South Goye Road, Yongfeng Industrial Park, Lunjiao County, Shunde District, Foshan City, with a floor area of 30,000 square meters; the new plant is located at Lot D-13-4, Startup Zone, Shunde Western Ecology Industrial Region, with a floor area of 80,000 square meters. Xinhuanbao is a key project in the "twelfth five year plan" of Guangdong province for the disposal of waste electrical and electronic products, and a designated enterprise approved by the four ministries of China (National Development and Reform Commission, Ministry of Finance, Ministry of Environmental Protection, and Ministry of Industry and Information Technology) to engage in the recycling, dismantling, deep processing, precise metal refining and remanufacturing of waste televisions, computers, washing machines, refrigerators, air conditioners, cell phones, small household appliances, and electrical and electronic products.

顺德是我国著名的家电之都，现已成为全国最大的电冰箱、空调器、微波炉、电饭煲、电风扇、消毒碗柜、热水器等家电生产基地，也是全球最大的电风扇、电饭煲、微波炉供应基地。十多年来，顺德家电产业规模一直占广东省的45%左右，总产值约占全国家电总值15%。顺德有近4000家家电企业，目前已经形成了包括大型的核心家电企业、中小型的零配件供应商、企业技术中心、博士后工作站以及工商协会组织的集群。众多企业的元器件及重要部件（包括：压缩机、电控、四通阀、电子膨胀阀、散热器、钣金、塑料件、印刷包装品）均以本地化采购为主。因此，收集回来的各类电子废物在顺德经拆解处理后，资源产品可就地消化解决，有利于电子废物上下游产业的协调发展。

Shunde is a famous city of household appliances in China, which has become the largest manufacturing base of household appliances such as refrigerators, air conditioners, microwaves, electric cookers, electric fans, disinfection cabinets and water heaters in China, as well as the largest supply base of electric fans, electric cookers and microwaves in the world. For more than ten years, the household appliance industry of Shunde has kept a share of 45% in Guangdong province, with its total output value accounting for about 15% of the industry in China. There are nearly 4000 household appliance enterprises in Shunde, where a cluster has been formed now, involving large core household appliance enterprises, medium and small suppliers of parts, technological centers of enterprises, post-doctoral workstations and industry and commerce associations and organizations. The components and important parts (including compressors, electronic control units, four-way valves, electronic expansion valves, radiators, sheet metal, plastic parts and printed packaging material) of many enterprises are mainly purchased locally. Therefore, after the different kinds of electronic waste recycled is disassembled in Shunde, resource products can be reused locally, which is conducive to the coordinative development of the upstream and downstream industries of electronic waste.

随着生产者责任延伸制度的逐步实施，
我司将秉持“务实诚信、思利及人、绿色环保”的宗旨，
为广东省及港澳地区的电器电子产品生产制造企业提供贴心服务。

With the establishment and implementation of EPR(Extended Producer Responsibility) regime,
we will uphold the spirit of credibility,benefiting others, green & sustainability,
to provide all the electrical and electronic enterprises in Guangdong province with close and warm services.

With the gradual implementation of the EPR (Extended Producer Responsibility) regime, we will always adhere to the tenet of “credibility, benefiting others, green and sustainability”, to provide electrical and electronic manufacturers in Guangdong, Hong Kong and Macao with attentive services.

科技与管理机制创新

Innovation in technology and management mechanisms

公司高度重视科技创新对企业发展的驱动作用，与清华大学、中南大学等院校建立了密切的产学研合作关系，通过不断加强机制创新与技术创新，稳步推进企业的生产和经营。

The company highly values the role of scientific and technological innovation in driving business development, and has established close industry-university-research partnerships with universities such as Tsinghua University and Central South University, to steadily pushing forward production

and operation through continuously strengthening innovation in mechanisms and technology.

公司于2010年成为中国物资再生协会第五届理事会常务理事单位；2011年，公司列为“广东省定点拆解废弃电器电子产品企业”，成为中国再生资源回收利用协会电子废弃物回收处理分会会员单位以及中国环境科学学会固体废物分会副理事长单位，评为“广东省守合同重信用企业”；2012年，公司被列入国家第一批废弃电器电子产品基金处理补贴企业名单，同时评为顺德区“龙腾企业”以及“A级质量信用企业”；

The company became a standing member of China National Resources Recycling Association in 2010; in 2011, the company was listed as “Guangdong Province Designated Enterprise for Dismantling Waste Electrical and Electronic Products”, became a member of the Electronic Waste Recycling and Treatment Branch of China Resource Recycling Association and a vice chairman member of the Society of Solid Waste of Chinese Society for Environmental Sciences, and was awarded the title of “Enterprise of Guangdong Province Abiding by Contracts and Valuing Credit”; in 2012, the company was included in the first list of enterprises given the subsidy fund for the treatment of waste electrical and electronic products, and awarded the titles of “Longteng Enterprise” and “Class A Quality and Credit Enterprise” in Shunde District.

2013年，公司荣获“广东省环境保护教育基地”称号、“全国电子信息行业优秀循环经济企业”称号和“低碳企业”称号，获得了“广东省环境保护科学技术奖”一等奖；2014年，公司评为“广东省资源综合利用龙头企业”，成为中国循环经济协会理事单位，并获得安全生产标准化三级企业证书；

In 2013, the company was awarded the titles of “Guangdong Province Environmental Protection Education Base”, “Nationwide Electronic Information Industry Excellent Circular Economy Enterprise”, and “Low-carbon Enterprise”, as well as the first prize of “Guangdong Province Environmental Protection Science and Technology Award”; in 2014, the company was entitled “Guangdong Province Resource Comprehensive Utilization Leading Enterprise”, became a member of China Association of Circular Economy, and obtained the Certificate of Safe Production Standardization Class III Enterprise;

2016年，公司通过ISO9001质量管理体系认证和ISO14001环境管理体系认证。

In 2016, the company passed the ISO9001 Quality Management System Certification and ISO14001 Environment Management System Certification.

鑫还宝公司是国家博士后管理委员会批准设立的企业博士后科研工作站，博士后站的科研方向主要围绕废弃电器电子产品循环利用专业领域，与有关科研机构共同开展博士后人才培养和技术攻关。随着科研力量的提升，公司于2016年申请通过了佛山市引进创新科研团队项目，获得市、区两级政府共1000万元的科研资金资助。

Xinhuanbao is also an enterprise post-doctoral scientific and research workstation established with the approval of National Post-doctoral Management Committee, the research orientation of which is post-doctoral talent cultivation and technological research jointly with relevant scientific research organizations, focusing on the specialized field of waste electrical and electronic product recycling. In 2016, with the improvement of strength in scientific research, the company applied for and was approved to participate in the project of introducing innovative scientific research teams to Foshan, and was given financial support of 10 million RMB in total for scientific research by the municipal and district governments.

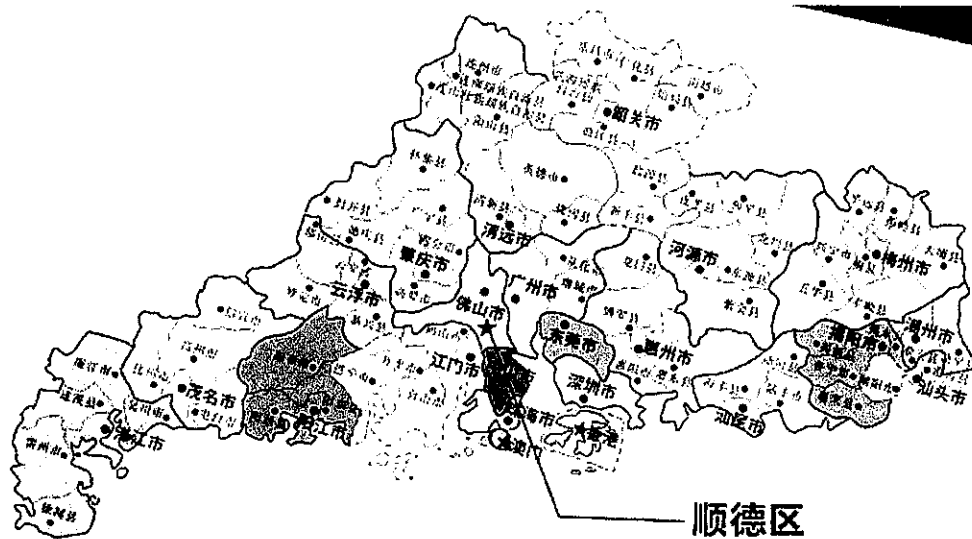
公司处理能力 COMPANY HANDLING CAPACITY

目前，公司拥有花园式回收处理厂房7座和仓库3座；大型生产线4条，包括回收PCB资源综合利用生产线2条、废旧冰箱无害化处理及资源回收生产线2条；中型生产线10条，包括CRT环保处理及资源回收生产线3条、废旧空调拆解线1条、洗衣机拆解线2条、电脑拆解线2条、塑胶深加工生产线2条。公司可处理工业固体废物1万吨/年、严控废物8000吨/年，废弃电器电子产品5万吨/年以上。2016年底新厂区全面验收完毕，二期工程项目建成全面投入使用，鑫还宝公司针对各类电子废物的处理能力和技术水平得到进一步提升，规划处理能力可达20万吨/年。公司的资源综合利用能力与技术水平均处于国内先进水平。

At present, the company has 7 garden-style recycling and treatment plants and 3 warehouses; 4 large production lines, including 2 recovery PCB resource comprehensive utilization production lines and 2 harmless treatment and resource recovery production lines for waste refrigerators; 10 medium production lines, including 3 CRT environmental-friendly treatment and resource recovery production lines, 1 waste air conditioning recovery line, 2 dismantling lines for washing machines, 2 dismantling lines for computers and 2 plastic deep-processing production lines. The company can process 10,000 tons/year of solid industrial wastes, 8,000 tons/year strictly controlled wastes and more than 50,000 tons/year of waste electrical and electronic products. Since the overall acceptance of the new plant was completed and the second phase project was completed and put into operation at the end of 2016, Xinhuanbao has further improved the ability of disposing different kinds of electronic waste and the technological level, with a planned disposal capacity of up to 200,000 tons/year. The comprehensive resource utilization ability and technological level of the company are both at an advanced level in China.

新厂区设计秉持“绿色、创新、匠心”的科学理念，拆解处理生产线主体采用国际上先进的工艺装备，废弃电器电子产品经自动化粉碎、混合材料的精细分选和资源化深加工，实现“产品—废弃物—再生资源—再制造产品”的循环利用。公司新厂区将采用资源化、减量化的先进资源循环利用技术，为促进珠三角区域经济的绿色发展和生态环境建设发挥积极的作用。

The design of the new plant follows the scientific concept of “green, innovation and ingenuity”, with the dismantling and treatment production line mainly composed of international advanced technological equipment. Waste electrical and electronic products are smashed automatically, from which mixed materials are sorted carefully and further processed, to realize the cyclic utilization of “product—waste—resource recovery—product remanufacturing”. The new plant will adopt the advanced resource recycling and reuse technology of resource recovery and volume reduction, to play a positive role in promoting the green economic development and ecological construction of the Pearl River Delta region.



• 广东省地图

区域地理优势 REGIONAL GEOGRAPHICAL ADVANTAGE

鑫还宝公司所在地佛山市顺德区，距离广州市约35公里，珠海、深圳、东莞、中山、江门均在100公里范围内，距离香港148公里、澳门108公里，顺德拥有直通港澳的水陆客货运口岸9个，其中国家一类客运口岸1个、二类货运口岸8个。随着珠三角、太澳高速、广明高速、佛山一环南延线、东新高速等6条高速公路、广珠城际轨道以及贯穿顺德十个街镇的区内快线全部贯通，将形成街镇30分钟生活圈、10分钟上高速公路、珠三角各城市间1小时互达的通畅路网格局。此外，顺德新港、北滘港、乐从杂货码头等港口工程的陆续建成投用将大大提升顺德的港口货运能力。

Xinhuanbao is located at Shunde District of Foshan City, which is about 35 kilometers from Guangzhou, less than 100 kilometers from Zhuhai, Shenzhen, Dongguan, Zhongshan and Jiangmen respectively, 148 kilometers from Hong Kong and 108 kilometers from Macao. Shunde boasts 9 land and water passenger and cargo ports directly connected to Hong Kong and Macao, including 1 national Class A passenger port and 8 Class B cargo ports. With the opening of 6 expressways such as Guangzhou City Ring Road, Taiyuan-Macao Expressway, Panyu-Gaoming Expressway, South Extended Road of Foshan 1st Ring Road and Dongxin Expressway, Guangzhou-Zhuhai Inter-city Railway, and express roads connecting ten towns within Shunde District, there will be an unblocked traffic network, through which people can reach anywhere in residential towns within 30 minutes, drive to the expressways within 10 minutes, and go from one city to another in the Pearl River Delta region within 1 hour. Besides, the completion and operation of New Shunde Port, Beijiao Port and Lecong General Cargo Wharf will greatly improve the port cargo transportation ability of Shunde.

干法回收PCB资源综合利用生产线

Dry recovery PCB resource comprehensive utilization production line

设备简介

Equipment overview

干法回收PCB资源综合利用设备，是废印制电路板基板粉碎和金属与非金属分离分选一体化生产设备。对废印制边框料和带元器件的废印制电路板，采用人工辅助拆除与机器自动切割将元器件与电路板分离后，将基板输送进入废印制电路板粉碎分离设备进行破碎分离，分选出金属粉末进行资源回收。该设备由破碎机（三级破碎）、磁选机（二级分选）、涡流分选、静电分离机以及废气处理系统五部分组成；该设备综合国内外最先进的粉碎与解离技术，具有自动化程度高，分离度高以及处理过程无废水、废渣及有害气体等二次污染排放的特点。

Dry recovery PCB resource comprehensive utilization equipment is integrated production equipment for the smashing of waste bare printed circuit boards and the dismantling and sorting of metal and metalloid. Waste printed frame materials and waste printed circuit boards with components and parts are dismantled manually and cut automatically by machines to separate components and parts from circuit boards, after which the base boards are fed into waste printed circuit board smashing and separating equipment, to sort out metal powder for resource recovery. The equipment is composed of five parts, namely a crusher (crushing level III), magnetic extractor (secondary sorting), vortex sorting, an electrostatic separator and an exhaust treatment system; the equipment combines the most advanced smashing and dismantling technology at home and abroad, with the characteristics of high automation, good separation and a treatment process free from secondary pollutant discharge such as waste water, debris and hazardous gas.

工艺流程说明

Technological process

设备采用的是机械物理法工艺，通过一级破碎、二级、三级粉碎解离，使铜和基板有效分开，然后再通过二级磁选和涡电流分选、静电分选达到最终各组成部分分离的目的。对带元器件的废印制电路板，采用人工辅助拆除与机械自动切割将元器件与电路板分离后，将基板送进废印制电路板粉碎分离设备进行破碎分离，分选出金属粉末进行资源回收，详细工艺流程见下图：

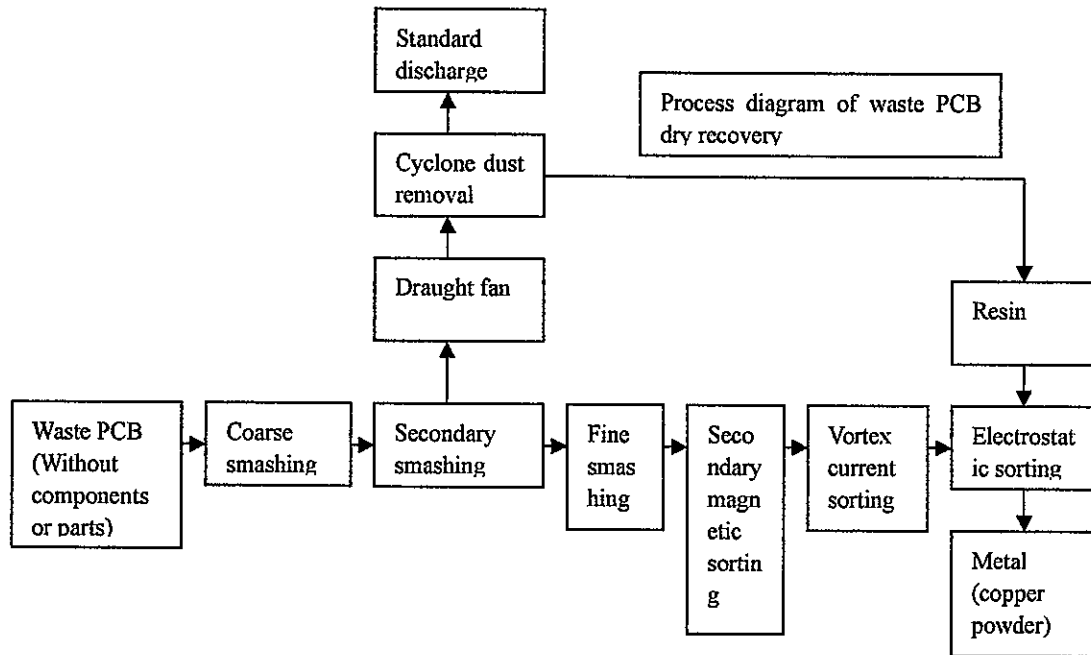
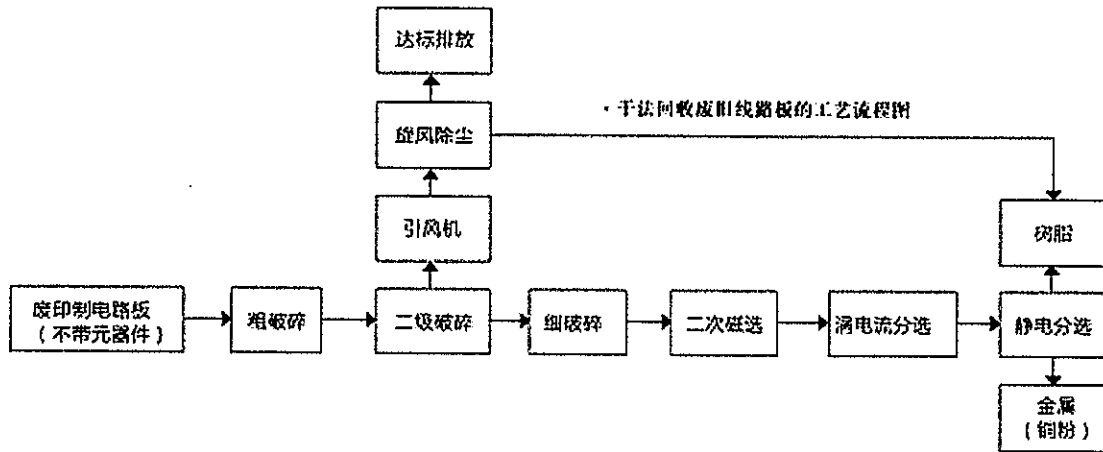
The equipment adopts the mechanical and physical process, to effectively separate copper from base boards through primary crushing and secondary and tertiary smashing, and then to achieve the final goal of dismantling all the parts by secondary magnetic sorting, vortex current sorting and electrostatic sorting. Waste printed frame materials and waste printed circuit boards with components and parts are dismantled manually and cut automatically by machines to separate components and parts from circuit boards, after which the base boards are fed into waste printed circuit board smashing and separating equipment, to sort out metal powder for resource recovery. See detailed technological process in the figure below:



Circuit board smashing line

• 废旧线路板干法处理设备

• Waste PCB dry recovery equipment



废旧冰箱无害化处理及资源回收生产线

Harmless treatment and resource recovery production line for waste refrigerator

设备简介

Equipment overview

废旧冰箱无害化处理及资源回收设备，是废旧冰箱、空调等含制冷剂家电产品的拆解处理成套装备。包括预处理工位抽氟工位、一次整体机破碎、二次粉碎分离、资源分类回收装置等。该设备在借鉴国外经验的基础上，集成两级破碎、涡流分选分离一体化技术具有自动化程度高、处理效率高、运行成本低、不产生二次污染等特点，达到国际先进水平。

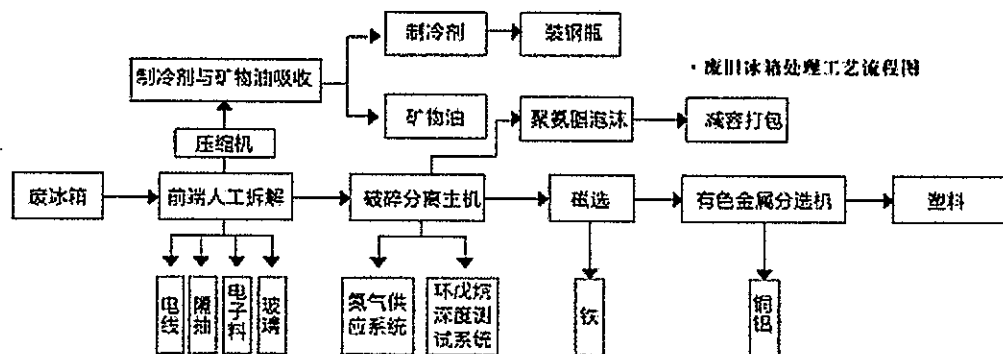
The harmless treatment and resource recovery production line for waste refrigerators is integrated equipment for dismantling and disposing waste household appliances containing refrigerant such as refrigerators and air conditioners.

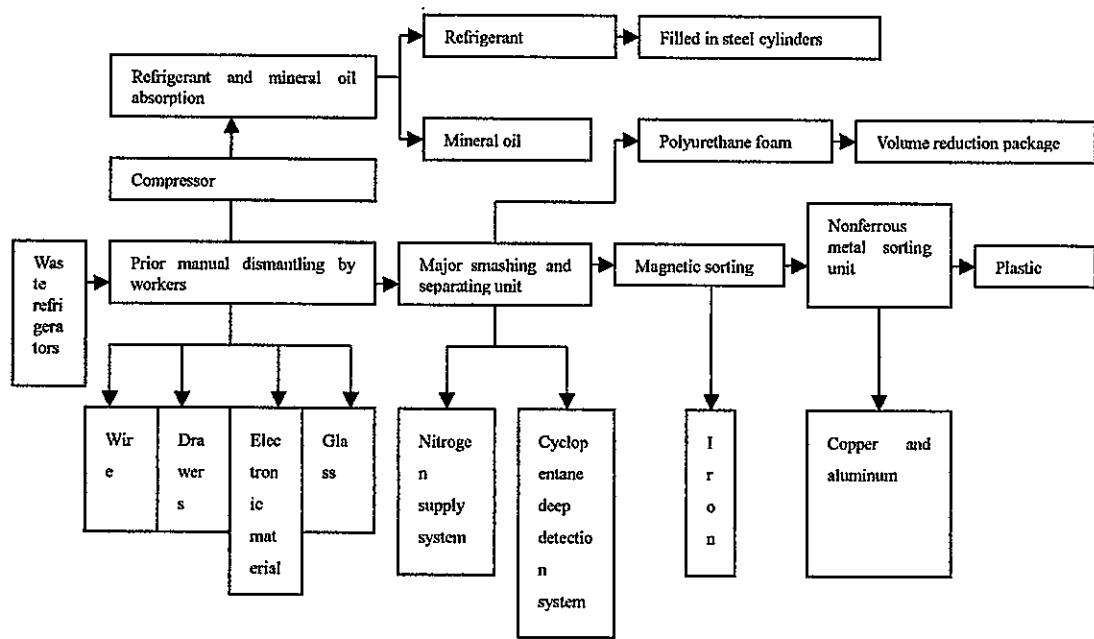
工艺流程说明

Technological process

首先对废旧电冰箱进行人工拆解，得到塑料、电线、玻璃和线路板等，然后回收制冷剂，再拆除压缩机和冷凝器等，然后装箱体进行多级破碎，破碎后的物料先进行风选分离，分离出聚氨酯泡沫经减容设备压缩成块，物料再通过磁选，分离出金属铁，最后进行涡电流分选，分离出铜、铝及塑料等。详细工艺流程见下图：

First, waste refrigerators are dismantled manually to get plastic, wire, glass and circuit boards etc. Afterwards, refrigerant is recycled and compressors, condensers are dismantled, and refrigerator shell is crushed and smashed step by step. The smashed materials are first separated through pneumatic separation, to get polyurethane foam and compress it with volume reduction equipment, then separated by magnetic sorting to get iron, and finally sorted with vortex current, to separate copper, aluminum and plastic etc. See detailed technological process in the figure below:





Refrigerator smashing and dismantling line

废旧电视、电脑CRT拆解生产线

Waste TV, computer CRT dismantling production line

设备简介

Equipment overview

废旧电视拆解及CRT显示器分离一体机，由拆解流水线和CRT屏锥玻璃分离设备两部分组成。拆解流水线采用智能物流输送、人工辅助拆解工艺，将废旧电脑、电视进行整机拆解。CRT屏锥玻璃分离设备集成、屏锥玻璃分离和荧光粉收集等工序，实现一体化处理操作，环保、安全、高效。

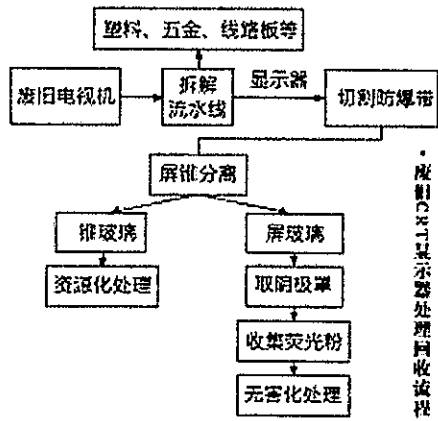
The waste TV dismantling and CRT monitor separation integrated machine is composed of the dismantling line and the CRT screen core-glass separation equipment. The dismantling line can fulfill the complete dismantling of waste computers and televisions by adopting the smart logistics transportation and auxiliary manual dismantling process. CRT screen core-glass separation equipment integrates the processes of screen core-glass separation and fluorescent powder collection, to realize the integrated treatment operation, which is environmental-friendly, safe and efficient.

工艺流程说明

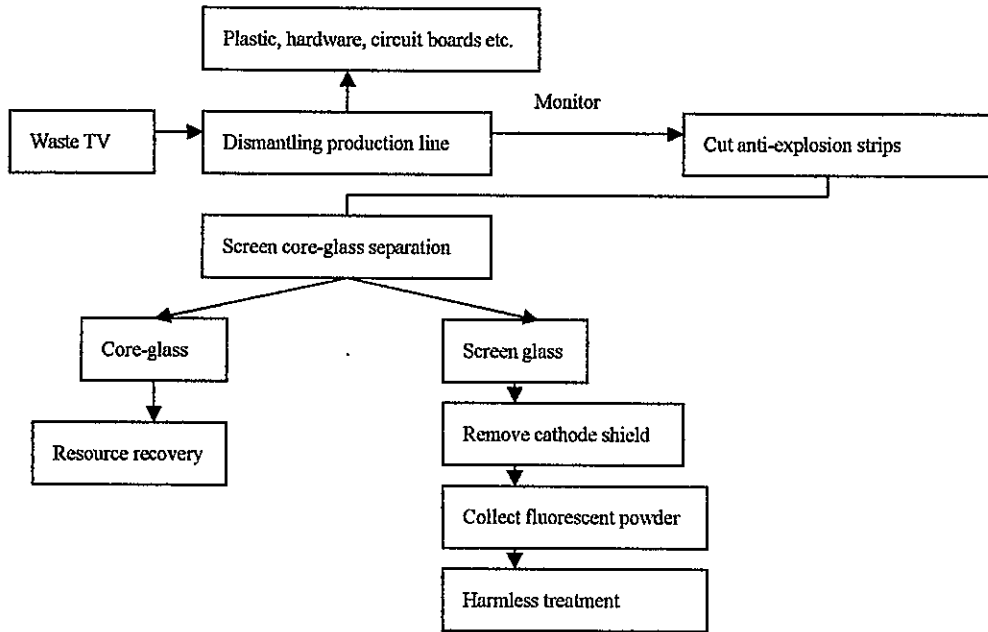
Technological process

废旧电视机、电脑等经过拆解流水线进行人工整机拆解，拆解出塑料、五金、线路板、CRT显示器等部件。CRT显示器送后续切割分离设备，先切割取出防爆带，再通过电热丝法分离屏锥玻璃，分离后屏玻璃取出其中的阴罩，再真空负压收集荧光粉。得到的屏玻璃可卖给玻璃厂或无害化填埋，锥玻璃送到有相应资质的单位资源化处理，详细工艺流程见下图：

Waste televisions and computers are manually dismantled on the dismantling production line, to separate plastic, hardware, circuit boards and CRT monitors etc. CRT monitors are fed into the subsequent cutting separation equipment, to first obtain the anti-explosion strips, separate the core-glass and the back screen glass with the heating wire method to separate, take out the cathode shield and then collect fluorescent powder through vacuum negative pressure. The screen glass can be sold to glass plants or buried harmlessly, and the core-glass is sent to organizations with relevant qualifications for resource recovery. See detailed technological process in the figure below:



• Waste CRT monitor treatment and recycling process



• CRT monitor preparatory dismantling platform



• CRT显示器玻璃分离室

废旧计算机、存储介质处理线

Waste computer, storage medium processing line

处理工艺

Processing technology

在拆解处理LCD显示器前，须小心将其背投照明灯拆除。这些灯内含汞，因此必须配有合适的劳动条件和专业人员拆除，送光管车间处理。废LCD显示器、笔记型电脑所含可回收利用的金属、塑料占90%以上，有些笔记本型电脑的光驱开关会含有少量汞，拆解下来的光驱直接循环再利用，故不会对环境造成污染。

涉密数据如果存储在硬盘、U盘、光盘等介质，一旦泄露将造成严重后果。我司采用高效消磁装置，可将硬盘等磁性存储介质彻底消磁，使之丧失数据存储功能，再将消磁后存储介质以及光盘等其他存储介质使用破碎机进行彻底粉碎、磁电分离，并加收铜、铝、塑料等资源。

Before LCD monitors are dismantled and processed, the rear-projection lights shall be dismantled with care. These lights contain mercury, so must be dismantled by professional staff in proper working conditions, and then sent to the light pipe workshop for treatment. Waste LCD monitors and notebook computers contain more than 90% of recyclable metal and plastic, and the CD-driver switches of some notebook computers may contain a little mercury, so the dismantled CD-drivers will not pollute the environment when put into reuse directly.

If confidential data is stored in the media such as hard disks, USB flash disks and CDs, its leakage will cause serious consequences. Our company adopts highly effective degaussing equipment, which can completely degauss the magnetic storage media such as hard disks, making them lose the function of data storage. Then, the degaussed storage media and other storage media like CDs are completely smashed and treated through magnetoelectricity separation, from which resources like copper, aluminum and plastic are recycled.

拆解产物

Products of dismantling

- 笔记本拆解产物
- Products of dismantling notebook computers

Mainboard, LCD panel

Organic coating, battery

Plastic shell, hard disks

- 台式电脑主机拆解产物
- Products of dismantling the desktop computer hosts

Mainboard, CD driver

CPU/RAM, shell

Power supply, hard disks

消磁流程

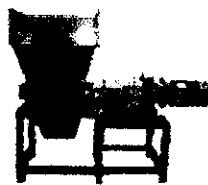
Degaussing process



• 废旧硬盘



• 消磁机



• 粉碎机



• 粉碎后物料

Waste hard disks, degaussing machine, smashing machine, materials after smashing

废旧空调处理回收线

Waste air conditioning recovery line

拆解工艺

Dismantling process

除去废旧空调外壳，抽吸制冷剂和润滑油；然后拆解出电线、压缩机、电机、散热器、线路板等部件，再将拆解后的剩余部分，经过破碎后得各类金属及塑料混合粉；所述各类金属及塑料混合粉经过金属塑料分离器分离出塑料粉，得到各类金属混合粉，所述各类金属混合粉可进一步分离出铁、铜、铝粉。

Remove the shell of waste air conditioners, and pump out refrigerant and lube; afterwards, dismantle them to get the parts such as wires, compressors, motors, radiators and circuit boards, and then the remaining parts after dismantling are smashed to get mixed powder containing different kinds of metal and plastic; the aforesaid mixed powder containing different kinds of metal and plastic is separated with the metal separator to get plastic powder and mixed power of different kinds of metal, the latter of which can be further separated to obtain iron, copper and aluminum powder.

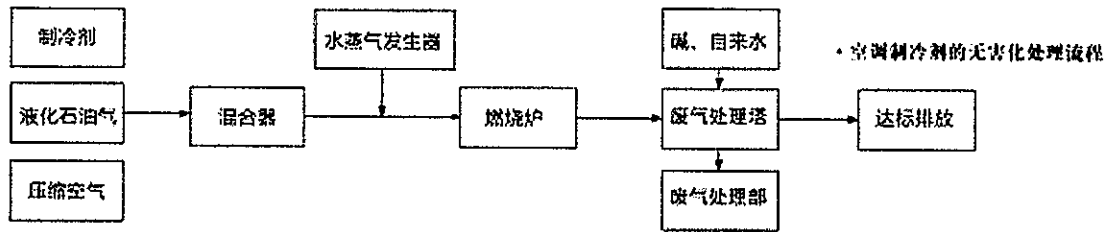
制冷剂的无害化处理

Harmless treatment of refrigerant

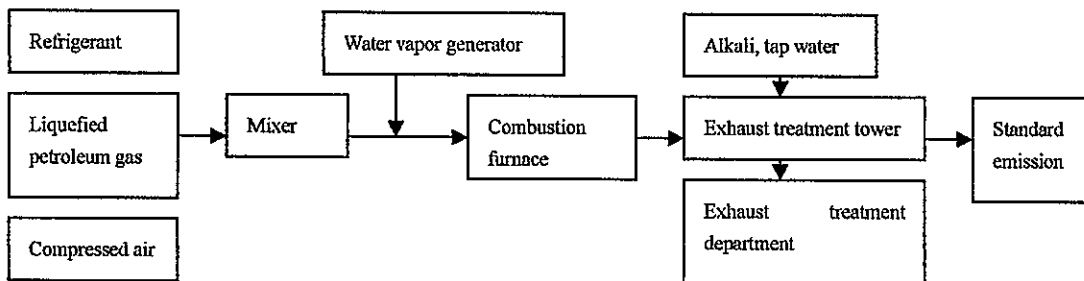
空调的制冷剂可以分为含氟类和不含氟类，其中不含氟类又分为：有机物类如戊烷、异丁烷；无机物类如氯化铵。根据不同种类的制冷剂采用不同的专用设备维持负压状态真空抽取，储存于专用钢瓶中；含氟制冷剂交由具备相关资质的单位集中处理。

The refrigerant of air conditioners can be classified into fluorine refrigerant and fluorine-free refrigerant, the latter of which can be further divided into the organic type such as pentane and iso-butane; inorganic type like ammonium chloride. Different kinds of refrigerant is extracted in

the vacuum negative pressure state with various specialized devices, and then stored in special steel cylinders; fluorine refrigerant is handed over to organizations with relevant qualifications for unified treatment.



• Harmless treatment process of air conditioning refrigerant



废旧洗衣机拆解回收生产线

Dismantling and recycling production line for waste washing machine

设备简介

Equipment overview

通过人工将电机等物质拆解后，再对电器进行整体破碎、磁选、电选等工序，处理过程可达到安全、无尘的要求。处理后可得到电机、铜、铝、铁、塑料、玻璃等资源。

After the parts like motors are dismantled manually, the processes of overall smashing, magnetic sorting and electric separation will be carried out for appliances, which can meet the safety and dust-free requirements. After treatment, resources obtained include motors, copper, aluminum, iron, plastic and glass.

主要设备

Major equipment

拆解工作台、破碎机、电机拆解设备、粉尘及尾气处理系统等。

Dismantling workbench, crusher, motor dismantling equipment, dust and tail gas treatment system etc.



• 拆解工作台

Washing machine dismantling line

- Dismantling workbenches



• 外壳塑料破碎机

- Shell plastic crusher

- 废旧洗衣机拆解分离后得到的物质

- Materials obtained from dismantled waste washing machines

☐ 电机 ■ 钢铁 □ 塑料 □ 铝 ■ 电路板 ◻ 平衡块 ■ 其他

Motor, steel and iron, plastic, aluminum, circuit board, counter balance, others

废旧小家电拆解回收生产线

Dismantling and recycling production line for small waste home appliances

自2016年3月11日起实施的《废弃电器电子产品处理目录（2014年版）》新增了打印机、复印机、传真机、电热水器、燃气热水器、吸油烟机、监视器、手机、电话机共9类小家电。鑫还宝公司建成两条综合拆解线用于废旧小家电的环保处理，当前重点发展废旧手机的拆解与资源综合利用。

There are 9 categories of small home appliances added to the *List of Waste Electrical and Electronic Products to be Disposed (2014)* that came into effect on March 11, 2016, namely printers, copiers, faxes, electric water heaters, gas water heaters, extractors, monitors, cellphones and telephones. Xinhuanbao has built two comprehensive dismantling lines for the environmental-friendly treatment of small waste home appliances.



Cellphone dismantling line II

废旧手机拆解与贵金属湿法提取工艺

Waste cellphone dismantling and the hydrometallurgy process for extracting precious metal

手机拆解包含前拆解和深加工两道工序：前拆解主要通过人工在新型多功能工作台上将手机后盖、电池、电子零部件、线路板逐一分离，整个过程安全无尘，处理后可得到塑料或金属外壳、按键片、按键铜片、显示屏、电池、喇叭、内存卡、手机卡、摄像头、振动器、话筒、芯片、按键线路板等；深加工主要将手机线路板的元器件剥离后，进行光板的贵金属湿法提取，处理后可得到金、银、钯等稀贵金属。主要设备包括拆解工作台、粉尘及尾气处理系统、贵金属湿法提取设备。

The dismantling of cellphones includes prior dismantling and deep-processing: Prior dismantling is mainly to manually dismantle the back shells, batteries, electronic parts and circuit boards of cellphones on new type multi-functional workbenches, which is a safe and dust-free process, to obtain plastic or metal shells, metal domes, copper domes, display screens, batteries, speakers, memory cards, SIM cards, cameras, vibrators, microphones, chips and key circuit boards etc.; deep-processing is mainly to extract precious metal from bare cellphone circuit boards through after components and parts have been removed from cellphone circuit boards, after which rare and precious metal such as gold, silver and palladium can be obtained. Major equipment includes dismantling workbenches, a dust and tail gas processing system and hydrometallurgy equipment for extracting precious metal.



• 废旧手机拆解流程图

• 废旧手机拆解与贵金属湿法提取工艺

• Prior dismantling process for waste cellphones • Prior dismantling and deep-processing line for waste cellphones

附件

Attachment

废弃电器电子产品处理目录 (2014 年版)

List of Waste Electrical and Electronic Products to be Disposed (2014)

No.	Product Name	Scope and Definition of the Product
1	Refrigerator	Refrigerator-freezers (cabinets), freezers (cabinets), refrigerators (cabinets) and other insulated boxes with a refrigeration system, which consume energy to obtain cooling capacity (capacity \leq 800 liters).
2	Air conditioner	Air conditioning appliances for adjusting indoor air with a cooling capacity of 14000W and below (that of multi-split air conditioners should be calculated by the cooling capacity of outdoor units), such as packaged air conditioners (window type and through-wall type etc.), split air conditioners (wall-mounted type and floor type etc.), and multi-split air conditioners
3	Extractor	Deep type extractors, European type tower model extractors, side suction extractors and other motor-driven appliances that are installed above stoves for the collection and treatment of polluted air.
4	Washing machine	Impeller type washing machines, tumbling box washing machines, agitator type washing machines, spin dryers and other appliances that wash clothes mechanically (including the function of drying clothes) (Capacity of drying: 10 kg).
5	Electric water heater	Water-storage type electric water heaters, instant electric water heaters and other appliances that can convert electrical energy into heat energy, and then transfer the heat energy to water, to make it reach a certain temperature (capability \leq 500 liters).
6	Gas water heater	A kind of gas devices that use gas as fuel and transfer the heat of combustion into cold water flowing through the heat exchanger to prepare hot water (thermal load \leq 70kw).
7	Printer	Laser printers, ink-jet printers, stylus printers, thermal printers and other devices that convert digital information into text and images and output them in the form of hard copies by working online with computers or using cloud printing platforms, including devices with the major printing function and other functions (printing page size $<$ A2, printing speed \leq 80 pieces/minute).
8	Copier	Xerographic copiers, ink-jet copiers and other equipment that duplicates original copies through various imaging processes, including the equipment mainly with the major copying function and other functions (printing page size $<$ A2, printing speed \leq 80 pieces/minute).

9	Fax	Terminal devices for communications that convert static images such as text, graphs and photos into electrical signals with the technologies of scanning and photoelectric conversion and send them out, and acquire copies in the form of records when receiving them, including devices with the major faxing function and other functions.
10	Television	Cathode-ray tube (black and white, color) televisions, plasma display panel televisions, LCD televisions, OLED televisions, rear projection televisions, mobile television receiving terminals and the other terminal devices with TV tuners for receiving signals and restoring images and sounds.
11	Monitor	Image output devices (excluding high frequency heads) consisting of a display device as the core, such as a cathode-ray tube (black and white, color) monitors and LCD monitors.
12	Microcomputer	The physical objects for information processing such as desktop microcomputers (including all-in-one machines) and portable microcomputers (including tablets and palmtops).
13	Cellphone	The handheld devices that can send or receive conversations or other audio, video and data between two places through the electromagnetic waves of the cellular network, such as GSM cellphones, CDMA cellphones, SCDMA cellphones, 3G cellphones, 4G cellphones and Little Smart.
14	Telephone	PSTN ordinary telephones, network telephones (IP telephones), special telephones and other user devices that can realize the conversion of acoustic energy and electric energy in communications.
15	Communication equipment	Communication equipment such as base station, transmission, exchange and core network.