



金晖兆隆高新科技有限公司

JinHui ZhaoLong High Technology Co., Ltd.

丁二酸 Succinic Acid

务实

PRAGMATIC

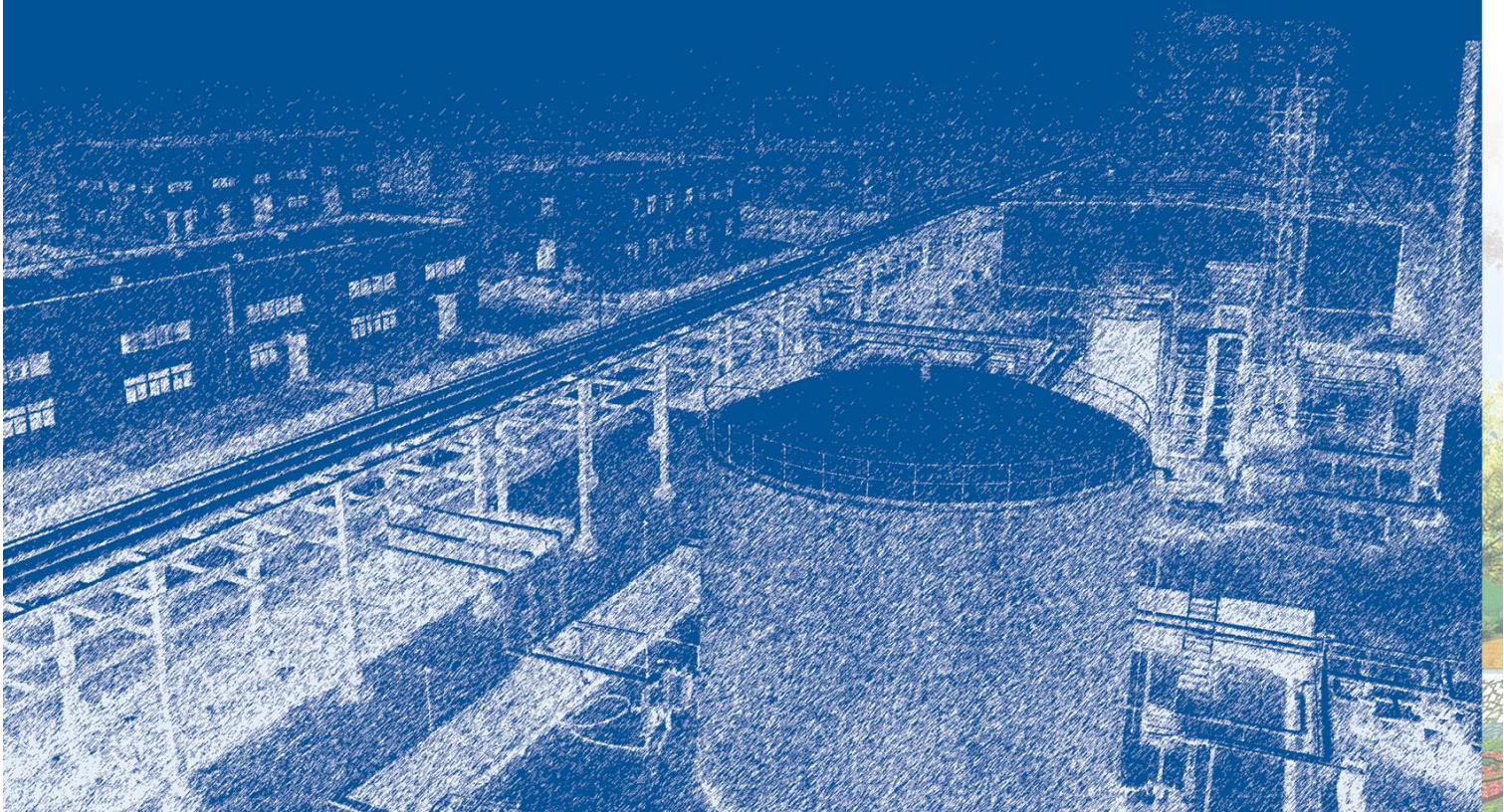
创新

INNOVATIVE

高效

EFFICIENT

诚信
CREDITABLE



金晖兆隆简介

JinHui ZhaoLong Profile

低碳环保、可持续发展已经成为21世纪的时代主题。在这样的时代背景下，山西金晖能源集团有限公司（简称“金晖集团”）顺应时代发展，积极转型，2012年全资组建了金晖兆隆高新科技有限公司（简称“金晖兆隆”）。金晖兆隆集科工贸、产学研于一体，专注于丁二酸和生物降解塑料的研发、生产及销售。厂址设于山西省孝义市经济开发区，在北京、广州、太原设有分支机构。

公司与浙江工业大学电化学科学与工程研究所（绿色化学合成技术国家重点实验室）合作，目前1万吨/年丁二酸生产线已建成投产。该生产装置采用高性能电极板和电解槽，电解还原收率和电流效率均显著高于国内其他装置，每吨产品可节约能耗300千瓦时左右，整套工艺自动化程度高，生产过程无“三废”排放，经检测，产品含铅量为零，其质量指标完全达到食品级标准。

兆隆同时拥有自己的研发团队为公司可持续发展做技术支撑。

Low carbon, green environment and sustainable development have become the main theme of 21st century. Under this background, Shanxi JinHui Energy Group Company (hereafter “JinHui Group”) follows the trend of this positive transform and founded JinHui ZhaoLong High Technology Co., Ltd (hereafter “ZhaoLong”) in 2012. ZhaoLong is a large scaled private company with full integration of production, trading and R&D in succinic acid and biodegradable plastic. The company is located in Shanxi Xiaoyi Economic Development Zone, and it has subsidiaries in Beijing, Guangzhou and Taiyuan.

JinHui ZhaoLong is working with the Institution of Electrochemical & Engineering in ZheJiang University of Technology (National Green Chemical Synthesis Technology Research Center). The production line of succinic acid with total capacity of 10,000 mts per annum has been put into operation. The production line applies the latest technology of electrode and succinic acid electrolysis bath. Both electrolysis recycle and current efficiency have more advanced technology compared with the existing level in China. The new technology can save energy consuming of 300 kilowatt-hour per mt. It also has high automation and zero waste emission. ZhaoLong’s Succinic Acid has zero Lead content. Quality of the product conforms with the national foodgrade requirements.

ZhaoLong has developed its own R&D team to support its future development.

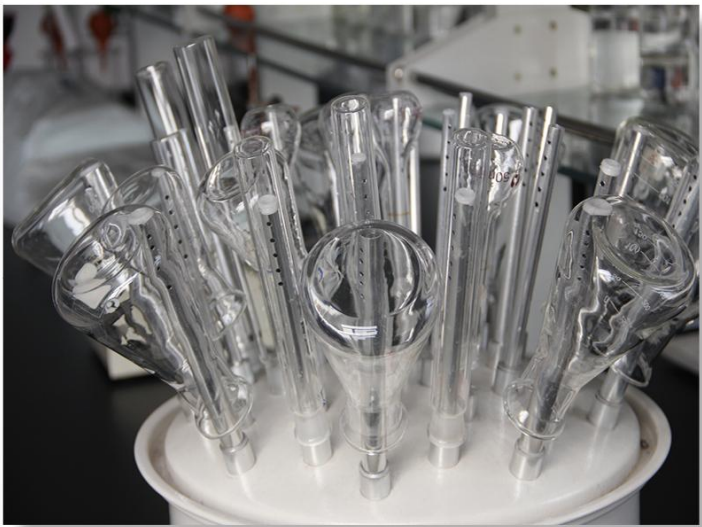
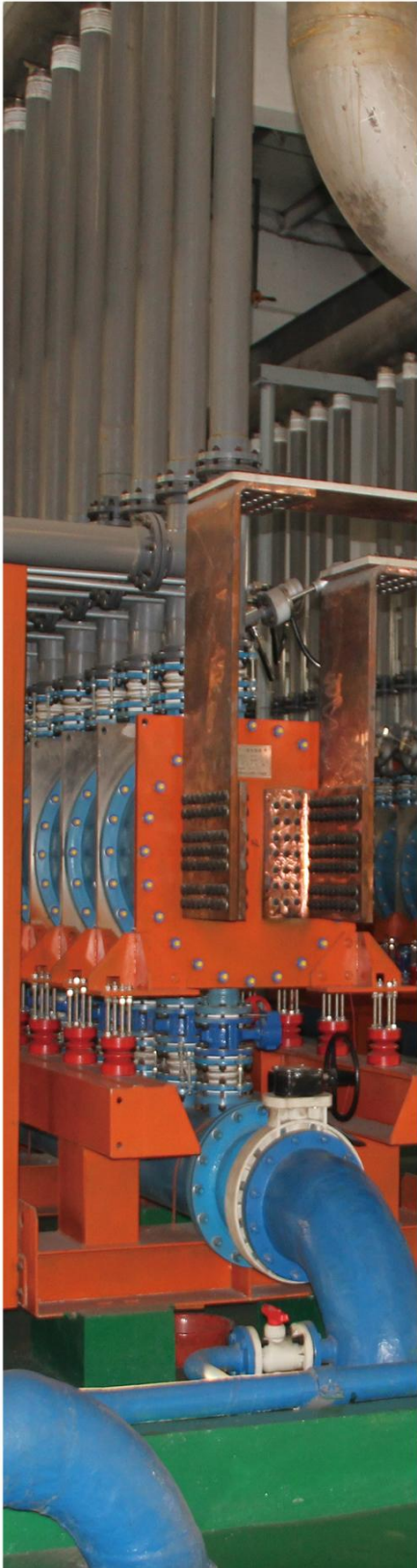


丁二酸 Succinic Acid

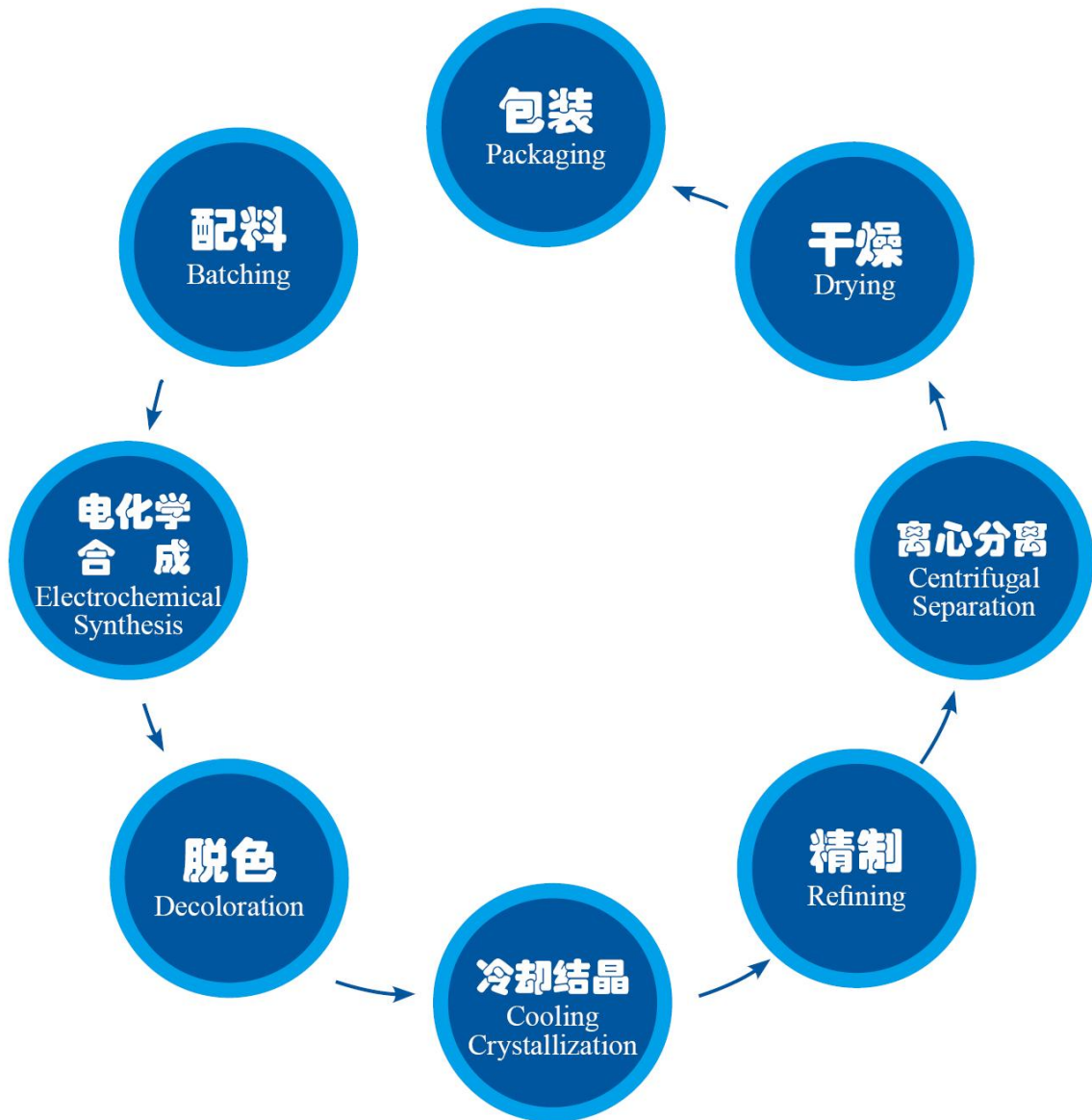
丁二酸广泛的分布在动植物界。1550年Agricola在蒸馏琥珀时首次发现，因此，丁二酸又被称为琥珀酸。丁二酸（Succinic acid,简称SA）是合成多种有机物的中间体和制造药物的重要原料，广泛应用于食品、医药、化工等领域。并且随时代的发展，丁二酸及其延伸产品的应用不断有新的突破。

Succinic acid widely exists in animal and plant world. It's also known as amber acid as it was firstly discovered by Agricola in 1550 upon amber distillation. Succinic acid is the intermediate for organic compounds and essential material for pharmaceutical manufacturing. It is widely used in food, pharmaceutical and chemical industries etc. The application of succinic acid will be further extended upon technology development.





制备工艺流程 Production Process



质量指标 Specifications

项目 Content	金晖兆隆指标 JinHui ZhaoLong SA
外观 Appearance	白色结晶粉末，无异物，无异味 White crystalized powder, no odd object and smell
丁二酸含量 SA content	≥99.5%
顺丁烯二酸 Maleic acid	≤0.1%
反丁烯二酸 Fumaric acid	≤0.1%
水份 Moisture	≤0.3%
熔点 Melting point	184~187°C
易氧化物（以KMnO ₄ 计） Readily oxidizable substance (KMnO ₄)	≤0.1mmol/g
灰份 Ash	≤0.1%
重金属（以Pb计） Heavy metal (Pb)	≤0.001%
砷(以AS计) Arsenic (AS)	≤0.0001%
硫酸盐(以SO ₄ ²⁻ 计) Sulfate (SO ₄ ²⁻)	≤0.005%
氯化物(以Cl计) Chloride (Cl)	≤0.005%
铁(以Fe计) Iron (Fe)	≤0.0005%

食品行业应用领域

Food Industry Applications

直接应用于食品中：

- 1、酸味(化)剂;
- 2、缓冲剂、中和剂;
- 3、日本清酒、发酵豆酱、酱油、清凉饮料、糖食制品等的调味剂。

与其它原料合成多种食品添加剂：

- 1、乳化剂、面团改良剂、营养增补剂;
- 2、配制浆果类香精及作为水果型香料的溶剂;
- 3、风味改良剂、酸味剂，主要用于配制酱袖、辣酱油并用于香肠，火腿、鱼糜制品等;
- 4、干贝素。

Directly applied in food:

1. Sour (chemical) agent;
2. Buffer and neutralizer agents;
3. Flavoring agent in Japanese Sake , fermented soybean paste, soy sauce, soft drinks and sugar products., etc.

Compound with other raw materials for various food additives:

1. Emulsifier, dough improver and nutritional supplements;
2. Mixed berry flavors and a fruit flavor solvent;
3. Improvement of flavor agent, sour agent, mainly used for the preparation of soy sauce, chili sauce and sleeve for sausage, ham, surimi products etc;
4. Scallop.



化工行业应用领域

Chemical Industry Applications

- 1、生物降解塑料 (PBS) ；
- 2、丁二酸二甲酯；
- 3、电镀PH值调整剂；
- 4、醇酸树脂；

1. Biodegradable plastic (PBS);
2. Dimethyl succinate;
3. Electroplating PH adjusting agent;
4. Alkyd resin;

- 5、染料；
- 6、清漆粘度稳定剂；
- 7、润滑剂、照像化学品表面活性剂；
- 8、蜡烛。

5. Dye;
6. Varnish viscosity stabilizer;
7. Lubricant and surface active agent of photographic chemicals;
8. Candle.



制药行业应用领域

Pharmaceutical Industry Applications

- 1、利尿剂、祛痰剂、维生素A、维生素B、磺胺药、止血药的合成;
- 2、解毒剂、抗痉挛剂;

1. Synthesis of diuretic, expectorant, vitamin A, vitamin B, sulfa drugs and hemostatic;
2. Antidote and anticonvulsants.



其他应用领域 Other Applications

- 1、重要的有机试剂;
- 2、一种用途广泛的植物生长激素。

1. Important organic reagent;
2. A widely used plant growth hormones.





总部：山西省太原市府西街69号国际贸易中心A座17层
Headquarter: 17th FL., Building A. World Trade Center, No. 69 Fuxi St.
Taiyuan City, ShanXi Province, P.R. China

邮编ZIP: 030002

电话Tel: (86) 351-8689356

传真Fax: (86) 351-8689718

北京：北京市石景山区盛景国际广场B-17F
Beijing: 17th FL., Building B. Royal International Square,
Shijingshan District, Beijing, P.R. China

邮编ZIP: 100043

电话Tel: (86) 10-57537767

传真Fax: (86) 10-57537762

工厂：山西省孝义经济开发区
Factory: Xiaoyi Economic Development
Zone, Shanxi Province P.R.China

邮编ZIP: 032308

电话Tel: (86) 358-7848086

传真Fax: (86) 358-7848031

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