

ZPG Series Spray Dryer For Chinese Traditional Medicine Extract

ZPG 系列中药浸膏喷雾干燥机

概 述



该机采用全封闭形式, 所有部件均采用不锈钢制造, 配有三级净化装置, 过滤后的空气达十万级要求。筒体与顶部装有冷壁装置, 使壁温 $<80^{\circ}\text{C}$, 物料在壁上停留也不焦化变质现象, 大大增加了收粉率(达95%以上), 而且不会产生混药现象和粘壁现象。

基本原理: 中药浸膏高速离心喷雾装置是离心式喷雾干燥技术在特定物料干燥中的应用, 也是利用高速离心式雾化器使物料分散成雾状, 与热空气所充分接触, 完成瞬间干燥, 形成粉状成品的干燥装置。

中药浸膏专用干燥机是专门用来解决, 中药浸膏和植物提液的喷雾干燥机, 它解决了物料在原LPG高速喷雾干燥机在中药浸膏干燥中出现的以下情况:

1. 物料粘壁, 收粉率低;
2. 物料在壁上停留时间长, 产生物料的焦化变质现象
3. 难以清洗, 不符合GMP要求;
4. 产量低: LPG-150型喷雾干燥机, 其产量只能处理50-60Kg/h液料。

鉴于以上状况, 我厂根据中药浸膏的物料性质与工艺要求设计了中药浸膏干燥机难题, 干燥后的物料颜色好、不变质, 大大地提高了工厂的经济效益。

中药浸膏与LPG高速离心喷雾干燥机相比有以下特点:

1. 采用了三级空气净化, 使进风达到10万级要求;
2. 采用了冷壁装置, 使内壁温度达到 80°C , 物料在壁上停留也不焦化;
3. 整个体积是原LPG标准离心喷雾的3.5倍。
4. 采用快开冲洗装置, 适用于多品种生产要求。
5. 除尘采用了湿式除尘, 使粉尘无外出, 符合环保要求;
6. 采用气扫装置, 其效果更令人满意;
7. 雾化器采用变频调速。
8. 采用了PLC控制, 程控系统屏幕显示;
9. 可以配带冲洗装置;
10. 采用干空气密闭输送。

Description

The machine adopts full seal form. All parts are made of stainless steel. It is equipped with three grades of filter. The filtered air is one hundred thousand grades. The cooling device of wall is installed at the cylinder body. It makes the wall temperature less than 80°C . Air sweeping device is installed inside the drying tower. The product will not be burnt or deteriorated even stays on the wall. The collection rate of powder is raised greatly. Moreover will not cause medicine mixed or wall stick.

Basic Principle: high-speed centrifuge atomizing for the extract of traditional Chinese medicine is an application of centrifuge atomizing technique. It is a high-speed atomizing dryer. The following problems are solved.

1. Raw material is stick on the wall and the rate of powder collecting is low.
2. Because the staying time of raw material on the wall is long, the phenomenon of burnt and degeneration can be produced.
3. It is difficult to clean and can not meet the requirement of GMP.
4. Low in output: Model LPG-150 atomizing centrifuge dryer can process 50-60kg/h of raw material liquid.

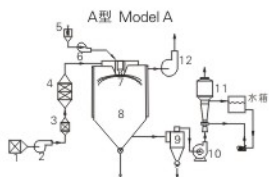
In view of this, according to the properties and process requirements of the extract of traditional Chinese medicine, our factory researched and designed the special dryer for the extract of traditional Chinese medicine and won items of china patent. It solves the historical difficult problems in drying the extract of traditional Chinese medicine. The color of dried raw material is good. The dried raw material does not degenerate. It raises the economic benefit greatly. Compared to ordinary LPG high-speed atomizing dryer, it has the following features:

- (1). Adopted three-grade air filter, the inlet air is one hundred thousand grade.
- (2). Adopted wall cooling device, the temperature of inner wall will be on more than 80°C . Even if raw material is stayed on the wall, it will not be burnt.
- (3). Its whole volume is 3.5 times of standard LPG high-speed atomizing dryer.
- (4). Adopted quick washing device, it is can meet the requirements of production for varieties if products.
- (5). Adopted wet-dedusting, there is no powder dust out. It is in conformity with the requirements of GMP.
- (6). Adopted air sweeping device, the clean effect is satisfied.
- (7). Equipped adopted frequency inverter control.
- (8). Adopted PLC control and display, and adapted frequency control.
- (9). Equipped with washing device on request.
- (10). Adopt the seal transport by dry air on request.

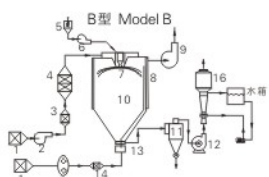
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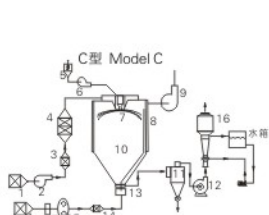
结构示意图
Schematic of structure



1. 初效空气过滤器 1.primary effect air filter
2. 送风机 2.blower
3. 中、高效空气过滤器 3.middle and high effect air filter
4. 电加热器 4.electric heater
5. 料桶 5.drum of raw material
6. 给料泵 6.feeding pump
7. 雾化器 7.atomizer
8. 干燥塔 8.drying tower
9. 旋风分离器 9.cyclone
10. 引风机 10.draught fan
11. 水膜除尘器 11.duster
12. 冷风风机 12.fan of cool air



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7. 雾化器 7.atomizer
8. 冷风夹套 8.jacket of cool air
9. 冷风风机 9.fan of cool air
10. 干燥塔 10.drying tower
11. 旋风分离器 11.cyclone
12. 引风机 12.draught fan
13. 气扫装置 13.air sweeping device
14. 电加热器 14.electric heater
15. 气扫风机 15.fan for air sweeping
16. 水膜除尘器 16.duster



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16. 水膜除尘器 16.duster
17. 除湿机 17.damp remover



扫壁系统
Sweeping system



控制系统
Control System



冷冻除湿冷却系统
Desiccant cooling system freezing

技术参数 Technical parameters

型号spec	ZPG-5	ZPG-10	ZPG-25	ZPG-50	ZPG-80	ZPG-100	ZPG-150	ZPG-200	ZPG-300
水份蒸发量 evaporation capacity(kg/h)	5	10	25	50	80	100	150	200	300
料液处理量 process amount of material liquid(kg/h)	6-7	12-14	25-34	50-68	80-108	100-135	150-203	200-270	300-406
成品含量 output of finished product(kg/h)	1-2	2-4	4.8-7.2	9.2-14	14.8-22.4	18.4-28	24-42	36.8-56.4	55-85
湿物料含固量 solid content of material liquid(%)	18-25								
成品含水率 moisture content of finished product(%)	3-5								
电功率 electric power(kw)	36	45	63	99	132	153	204	246	330
加热源 heat source	蒸汽加电 Steam plus electricity								
产品捕集方式及效率 collecting method of product and its efficiency	两级旋风除尘器或一级旋风除尘器及一级湿式除尘器≥95% Two-grade cyclone or one-grade cyclone and one-grade web-method dedusted of 95%								
自控仪表 automatic control meters and instruments	热风温度及排风温度指标, 自动调节温控仪 indicator of not air and exhaust air temperature								
进风温度 temperature of air inlet(°C)	150-200								
出风温度 temperature of air outlet(°C)	80-100								
外形尺寸 overall diimensions(mm)	长L	5000	5500	7000	8000	9800	11000	12200	15000
	宽W	3000	3500	4000	5000	5700	6200	7000	9000
	高H	4500	4600	5200	6500	7600	8100	9000	11100

注：部分参数设计时视不同物料有所调整，以设计为准。