

从表 2 中三组测试数据可以看出,计量系统误差在 $\pm 1\%$ 之内,可以满足生产工艺要求。

5 结 论

通过减少仓壁摩擦阻力,适当增大料仓壁与水平面的夹角,选用 T 形破拱装置及配套的料仓结构,增加呼吸口和匀料装置,采用变径螺旋等措施,能够较好地消除物料特性等引起的无规律的影响因素,在不加控制系统的情况下,加料机构的精度高于 $\pm 3\%$ 。在配用自动控制系统后,系统动态计量误差达 $\pm 1\%$ 。

参考文献:

- [1] 林又红,但斌斌,周鼎. 粉状物料动态计量的研究[J]. 武汉科技大学学报(自然科学版),2000,23(3): 263-264.
LIN You-hong, DAN Bin-bin, ZHOU Ding. Study on powder material dynamic metering[J]. *Wuhan Sci-Tech University (Natural Science Edition)*, 2000, 23(3): 263-264.

- [2] 方原柏. 瑞士哈斯勒公司 POWDRIT 粉状物料用称重给料机[J]. 衡器,2002,31(2): 11-14.
FANG Yuan-bai. Weighing feeder for powdery material of Switzerland[J]. *Heng Qi*, 2002, 31(2): 11-14.
- [3] C Murphy, IH DIV, NSWG, E Girand, SNPE, et al. Continuous processing of composite propellants (CPOCP) [A]. 29th Int Annu Conf of ICT[C], Karlsruhe, 1998.
- [4] 李毅慧. 聚丙烯装置计量进料系统的改造[J]. 化工自动化及仪表, 2002, 29(3): 75-76.
LI Yi-hui. Modification of metering feeding system of polypropylene device[J]. *Control and Instruments in Chemical Industry*, 2002, 29(3): 75-76.
- [5] Mike Rose, et al. Safety improvements in the continuous processing of energetic materials[A]. 34th Int Annu Conf of ICT[C], Karlsruhe, 2003.
- [6] 沈立人,贾頔康. 称重传感器的准确度[J]. 衡器,2001,30(3): 19-20.
SHENG Li-ren, JIA Yi-kang. Accuracy of weighing sensor[J]. *Heng Qi*, 2001, 30(3): 19-20.

Dynamic Metering Technique of Pulverized Explosive

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Abstract: To deal with the main problems which affect the metering precision in metering device for pulverized materials such as "arching of materials" and "non-uniform discharge" etc, the mechanical structure of the metering device were studied. The hopper structure, arching-detractive device and the transport spiral were improved to resolve the problems in fluency and uniformity of materials transportation and to elevate the metering precision. Combining with the materials characteristics, the effect of the mechanical structure on the system precision is analyzed according to the stability of the air pressure in the hopper and the change of the materials pressure etc. The results show that when combining with automatic control system the dynamic metering precision of system is higher than $\pm 1\%$, the requirements of on-line metering of propellant and explosive production process are satisfied.

Key words: chemical engineering; pulverized explosive; metering device; dynamic metering technique; metering precision; twin-screw; composition

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