

# Quadro® Comil®

## DELUMPING CHEMICAL POWDERS - SODIUM NITRATE

### BACKGROUND/REQUIREMENT

A large fireworks manufacturer approached Quadro with an application to delump sodium nitrate powder before it was introduced into a mixer. Like many chemical powders, sodium nitrate is slightly hygroscopic and absorbs a certain amount of atmospheric water with time. The powder feels dry to the touch but the small amount of water absorbed, along with the weight of the product around it, causes the individual particles to stick together.

These agglomerates can be from loose to tight packed and be of any size. In order to disperse evenly with other powders in a mixer, these lumps must be broken down to their original particle size and free flowing nature. The particle size of the original powder must be maintained.

### COMIL® PERFORMANCE

The Comil® was able to break down the one inch (25 mm) friable lumps of sodium nitrate to its original particle size of 40 mesh U.S. Standard. The particle size distribution of the discharged product almost exactly matched that of the original powder before agglomeration occurred.

### EQUIPMENT RECOMMENDATIONS

#### ALL MODELS ARE CHOKE FED

MODEL	SCREEN	IMPELLER	RPM	HP	CAPACITY	
					LB/HR	KG/HR
197	2A032R	2A1601	4800	2	600	270
194	2C032R	2C1601	2700	5	3000	1400
196	2F032R	2F1601	1750	10	6000	2700

### SUMMARY

The fact that the Comil® is not a high RPM hammermill or pulverizer is what is attractive to chemical processors. It introduces them to a better alternative. They are all familiar with the typical high RPM mills and particularly, the associated dust and noise.

The aggressive force of a hammermill is "overkill" for most chemical powder delumping and sizing requirements. The Comil® is ideal due to the low dust, low noise, high capacity grinding operation.

The following are examples of successful delumping applications:

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|-----------------------------|------------------------|
| 1) Silver Powder (400 mesh) | 6) Alumina             |
| 2) Teflon Powder ( 60 mesh) | 7) Amonium Nitrate     |
| 3) Toner                    | 8) Lactic Acid         |
| 4) Tricalcium Phosphate     | 9) Boric Acid          |
| 5) Shellac                  | 10) Epoxy Resins, etc. |

