



FINEST QUALITY SERVICE

## Cosmetics Industry's Constant Search for Finest Particle Size

APPLICATION NOTE COSMETICS | May, 2018

**INDUSTRY:** COSMETICS

**LOCATION:** GLOBAL

**KEY CHALLENGES:** MEET  
THE CHALLENGE OFFERED  
BY THE "BITE TEST"

**SOLUTION:** DEVELOP JET  
MICRON-MASTER® MILLS  
FOR COSMETIC  
APPLICATIONS

**BENEFITS:** CREATE THE  
FINEST PARTICLES  
AVAILABLE



Since 1946, Jet Pulverizer has been responding to customer demands with high quality, engineered solutions. Jet Milling has proven to be the best dry powder cosmetics manufacturing processing equipment, resulting in THE FINEST particle sizes.

### **The Challenge**

According to Cosmetics Historian James Bennett: "In the early 1930s Lady Esther became the top-selling, loose face powder in the United States, a position it maintained for the rest of the decade" (Bennett, 2018) She created that position by promoting her product as the very finest and confirming it with a home test: "Take a pinch of your powder and place it between your front teeth. Bring your teeth down on it and grind firmly. If there is any trace of grit in the powder it will be as instantly detectable as sand in spinach." (Lady Esther advertisement, 1935)

This was so successful that competitors needed to find new processes and new materials in order to pass the "bite test". In 1937 chemists started to do research on particle size required to pass the test. One such chemist, M. L. Smith published the results of his experiments on volunteers. As reported by deNavarre, Smith determined that the particles would need to be **12 microns** (0.012 mm) or less to pass the test (deNavarre, 1941, p. 354). This was much smaller than the particles produced by the mixing and sifting methods then used by most powder manufacturers. (Bennett, 2018)



### **The Jet Pulverizer Co.**

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## APPLICATION NOTE | COSMETICS FACE POWDERS



"It must be remembered that a "fine powder" is, of course, a relative term. A generation of so ago "200 mesh" was considered very fine. Nowadays a 50-75 micron particle seems rather coarse, and a material needs to be **below 10 microns** in size to be thought of as an "impalpable" powder. Perhaps in another twenty years even particles of 10 microns might be thought of to be boulder-like, and the public demand may be for something finer still."  
(Hibbott, 1947, p. 271) (Bennett, 2018)

### The Solution

"Pulverizers" have, since the 1930s become de rigueur equipment for cosmetic manufacturers to meet their clients' demand for the finest powders possible. Coty, as early as 1935, started a line of face powders which were milled using air mills, as opposed to mechanical mills, reflected in the brand name "AirSpun" in direct response to the Lady Esther "Bite Test". (deNavarre, 1941)

Not long thereafter, The Jet Pulverizer Company began designing, engineering and manufacturing its Micron-Master® Jet Mills in 1946 and has continued to improve its design over the years. Today, it continues to deliver on its uncompromising position to achieve the finest particle size possible. As Mr. Hibbott had predicted in 1947, cosmetics manufacturers are continuously searching for ever finer particle sizes to meet their clients' demands and Jet has been there to meet them. The Jet Pulverizer has successfully tested and achieved the following in its mills:

Material	<D50	<D100
Mica	3.6	11.55
Pigments (Iron Oxide)	0.52	1.35
Zinc Oxide	0.68	3.68
Talc	1.7	7.42

### Bibliography

- Bennett, J. (2018, 5 11). *The Bite Test*. Retrieved 5 11, 2018, from Cosmetics and Skin: <http://cosmeticsandskin.com/cdc/bite-test.php>
- deNavarre, M. (1941). *The chemistry and manufacture of cosmetics*. Boston: D Van Nostrand Company.
- Hibbott, H. (1947). Particle size relationships in face powders. *The American Perfumer & Essential Oil Review*, 269-271.



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