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## Bismuth Subcarbonate, RadioMax

Shepherd Chemical's Bismuth compounds are manufactured to high quality specifications including purity by assay, trace metal analysis, nitrates, & particle size. Our Bismuth subcarbonate is free from major impurities that could affect product performance. The Bismuth Subcarbonate particle size is tightly controlled to ensure optimal incorporation as an additive product.

Medical devices used by surgeons during operations must be highly visible on X-Ray with great contrast to ensure they are positioned and manipulated with precision during life-saving procedures. Bismuth compounds have a unique ability to act as a radiopacifier in medical-grade polymers at low concentrations. Bismuth Subcarbonate absorbs or deflects X-Ray photons resulting in their appearing with high contrast on X-Ray images compared to surrounding bone and tissue. Modern X-Ray equipment generates high energy levels when compared to older X-Ray Equipment. High-powered X-Ray imaging equipment generates more photons and requires a high level of radiopacity to achieve the desired contrast for medical devices. Minimizing additive concentration while achieving the required radiopacity is also key to maintaining the core function of the medical device. Bismuth compounds are favored when compared to barium products because they create a sharper, brighter, higher-contrast image on an X-Ray image with lower concentration. Bismuth Subcarbonate, RadioMax is a dense, high performance radiopaque additive well-suited for this application.

Bismuth compounds are routinely incorporated into medical-grade plastics to act as radiopacifiers. The bismuth subcarbonate particle size is a critical parameter in formulating these plastics. Shepherd Chemical tightly controls the particle size of Bismuth Subcarbonate with a proprietary milling process to achieve a particle size of less than 0.3 micrometers. The particle size distribution of each lot is verified with state of the art analytical equipment.

### Technical Specifications:

Assay as $(\text{BiO})_2\text{CO}_3$	97.6 - 100.7
pH (Low Ionic Strength)	5 - 8.5
Silver	25 ppm
Arsenic	5 ppm
Calcium	100 ppm
Copper	50 ppm
Iron	50 ppm
Lead	20 ppm
Magnesium	50 ppm
Potassium	20 ppm
Sodium	3000 ppm
Chloride	30 ppm
SO <sub>4</sub>	20 ppm
Nitrate	1.5%
Loss on Drying, 105°C	0.5%

Product Number:

**1467M**

### Description:

White, odorless powder;  
soluble in Nitric Acid,  
insoluble in water and  
alcohol

### Application:

Radiopaque Additives

### Chemical Formula:

$(\text{BiO})_2\text{CO}_3$

### Packaging:

75 lb – 26 gallon fiber drum

*Manufactured under ISO 9001 registered  
quality management systems.*