**Background/Requirement**

A large, global pharmaceutical company is looking to grind Benzocaine, an anesthetic that is typically used on a 5%-20% solution and is applied topically to gums, skin and other areas as needed. Benzocaine is also a component used in the manufacturing of oral lozenges for its therapeutic properties.

**Fine Grind Performance**

The customer sent Quadro a set of target lots with slightly varying PSD requirements from a $d_{90} = 74.948$ to $78.698$ micron (77.011 micron average) at a bulk density requirement of 0.28g/cc loose and 0.37g/cc tapped. The Quadro Fine Grind F10 was recommended for this application and successfully milled the raw Benzocaine material ($d_{90}$ of 834 micron) to an average of $d_{90} = 76.389$ micron in a single pass. The F10 was also able to maintain a bulk density of the milled product of 0.29g/cc and 0.39g/cc for loose and tapped densities respectively.

During trials, higher and lower $d_{90}$ values were achieved by varying impeller RPMs, feed rates, etc. A tight bell curve PSD characterization was retained during all tests. Controlling the outfeed PSD gives the customer the flexibility to adjust product characteristics should future requirements change.

**Summary**

The F10 was able to obtain a capacity of 60kg/hr which more than met the customer’s requirements. An extremely tight PSD curve was achieved without the need to sift out excessive overs and fines, thus reducing additional milling steps or wasted material. Below is shown the PSD results obtained.