



## BATCH - Granular Form vs. Nugget

Below is the difference in savings using a cullet form of glass instead of a granular form, also information regarding health issues associated with granular forms of batch.

- a) Melting a ton of System 96 Nuggets produces a 100 percent return in comparison; melted raw materials return a much lower percentage per ton. A 1000# melt of Spruce Pine yields about 750 # of glass, Philips would yield 800# of glass, and Glasma Pellets yield about 800 #.
- b) With a 20-30% loss of batch, one must use 1200-1400 lbs of batch to make 1000# of glass.
- c) Dust in the shop is a primary safety concern. Studio batch formulas commonly contain a large percentage of crystalline silica. The dust from crystalline silica leads to silicosis, a scarring of the lungs that is irreversible. Cullet contains very little crystalline silica because the sand has been changed during melting to an amorphous (rounded in shape) state. This state does not change back to crystalline even if the cullet is crushed. Cullet typically contains less than one-percent crystalline silica by weight and is therefore not considered hazardous by federal standards.
- d) Now the energy savings. Glass made from 100% cullet uses 20-35% less energy than glass made from only Batch. This is achieved by reduced charging and cooking time, as well as the lower melting temperatures. With cullet the furnace does not need to achieve the same high temperatures necessary to melt granular batch, thus increasing furnace life.
- e) The use of cullet also saves on wear and tear on furnaces, resulting in extended furnace life and saving on maintenance. The biggest increase in furnace life is achieved by lowering the amount of flux in the furnace. The fluxes designed to melt the sand in batch, also attacks the furnace. With cullet the fluxes have been satisfied thus reducing furnace corrosion. It is not uncommon to see a furnace that uses cullet to last 50% longer than a furnace using only batch.
- f) The temperature you choose to melt depends on your glass usage and how fast you use the product in your furnace. In other words, if you charge in the evening and want good glass in the morning you should melt at about 2150F - 2200F range. If you let your furnace sit a couple of days before you use the glass, then 2100F will work. Making the glass less labor intensive for charging.
- g) Delivered in 50lb easy to handle synthetic bags that are impervious to moisture. Go ahead and leave this cullet out side, Mother Nature will not affect the life of your nuggets. Indefinite shelf life.

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