

## Effer-Soda™

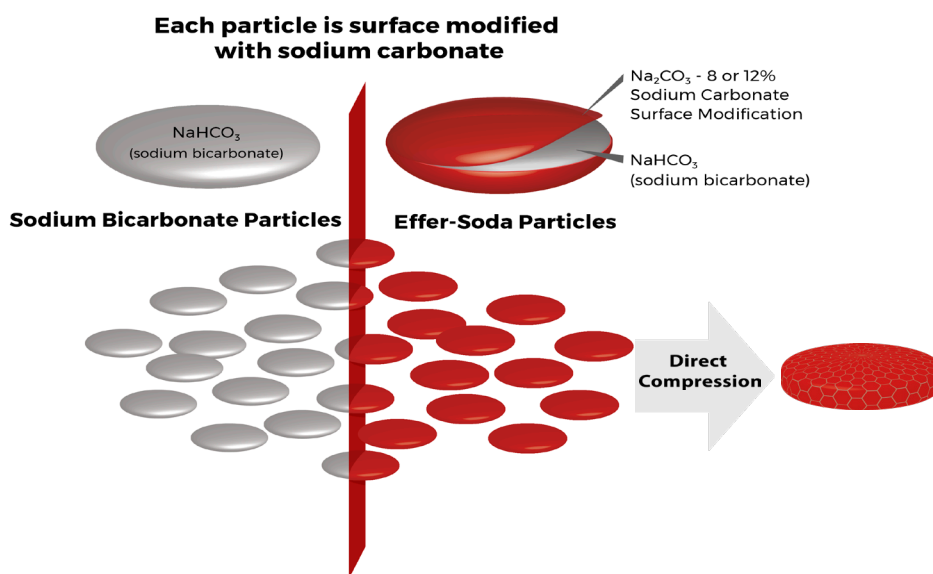
### Surface Modification Provides Protection

Sodium bicarbonate is a primary ingredient in effervescent tablets and powders. Together with an acid, such as citric acid or tartaric acid, sodium bicarbonate reacts in the presence of water to produce carbon dioxide. Consequently, the major disadvantage of sodium bicarbonate is that, in the presence of minute amounts of moisture and acid, it immediately effervesces. This reactivity can lead to formulation instability and premature effervescence in storage. Also, additional processing steps to pre-dry the powder along with special equipment and processing conditions are often required during manufacturing to avoid premature effervescence.

This issue can be resolved using Effer-Soda, which is pretreated to provide enhanced stability in effervescent formulations. This is achieved by converting the appropriate amount of sodium bicarbonate to sodium carbonate. The converted sodium carbonate acts as a desiccant skin, preventing premature effervescence.

**In both effervescent tablets and effervescent sachets, each particle must be surface modified to avoid premature effervescence.**

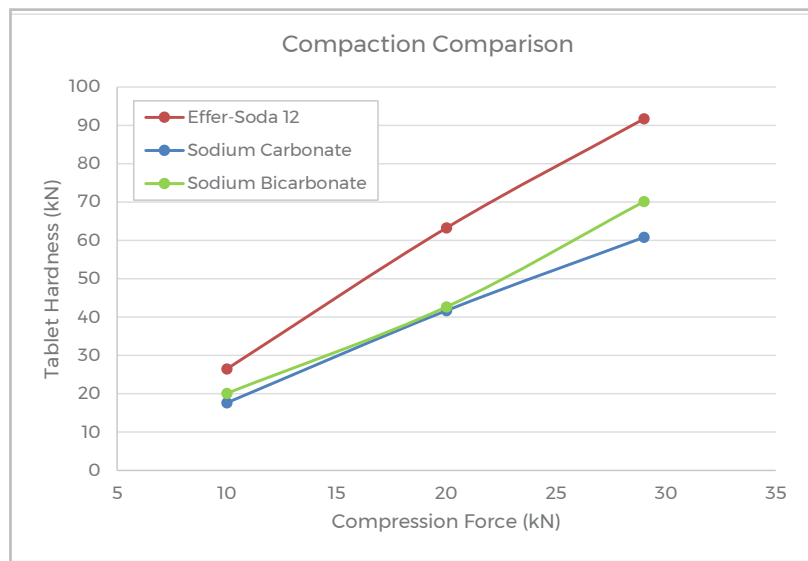
**The Effer-Soda manufacturing process ensures that each particle of sodium bicarbonate is surface modified with sodium carbonate.**



### Better Compaction and Excellent Flow Properties

Effer-Soda is ideal for direct compression and sachet formulations compared to sodium bicarbonate. It has better compaction, allowing for less binder, resulting in an exceptional effervescent tablet. With a superior Carr's Index, Effer-Soda has an excellent flow compared to sodium bicarbonate.

Figure 1: Effer-Soda is More Highly Compactable Than Sodium Carbonate or Sodium Bicarbonate Alone



## Making a Difference in Effervescent Formulations

Effer-Soda provides the effervescence desired by your customers while lowering product failures from premature effervescence. By reducing the need for costly humidity control during manufacture and expensive protective packaging, Effer-Soda can help drive productivity and profitability.

SPI Pharma's focus on the pharmaceutical industry means Effer-Soda is manufactured under cGMP guidelines, it has a Type IV US DMF to support the most advanced pharmaceutical applications.



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