

WHITEPAPER

FIRST IMPRESSIONS: TABLET SHAPE CAN IMPACT PATIENT ACCEPTANCE

First impressions are everything. This is especially true for pharmaceutical, nutritional and confectionery tablets. Discriminating consumers may decide if they will be repeat customers based on a tablet's appearance and their experience with it. This article discusses the limitations of the flat faced bevel edge and the benefits of a flat faced radius edge tablet design.

A tablet's size, shape, color, and perceived ease of use are quickly determined by the consumer from their first encounter with the product. The tablet's appearance must impart the sense that the customer/patient can successfully and easily swallow it, without an undesirable taste.

A tablet manufacturer can influence customer acceptance by producing tablets that appear simple to utilize. Tablet design drives much of the visual impact of a tablet, and design features such as a smooth tablet shape improve product appeal and influences consumer preference.

Because a tablet's design can so strongly influence consumer acceptance, a company's marketing department often provides significant input as design and coating decisions are made. However, it is highly advised to include the production department in these decisions as it is their responsibility to deliver the final product. The production department's experience and expertise can greatly reduce production costs and issues as some tablet designs present higher tooling costs and suboptimal physical properties of the tablets.



“ A good tablet design can help a company gain market share, consumer confidence and higher profits, whereas a bad design can cost literally thousands, if not millions, of dollars in lost sales, revenues and additional operating expenses.” said Dale Natoli, President of Natoli Engineering Company, whose clients include major pharmaceutical, nutritional, confectionery, industrial, and veterinary clients.



DALE NATOLI
President

Tablet designs that have been developed to improve tablet quality and reduce production costs, include the **flat faced bevel edge (FFBE)** tablet design. FFBE became popular early in the development of tablet manufacturing using rotary tablet presses because it offered significant improvement to the flat faced design. The flat faced tablet design suffered from weak tablet edges because of powder leakage at the punch tip die wall interface. Weak edges were prone to chipping and excessive friability. Adding a beveled edge to the tooling was very simple for the tooling machinist to do and allowed for the formulation powder to be pushed back to the center of the die - making for stronger tablet edges. Over decades, the FFBE configuration became a very popular design for the tableting industry. However, the FFBE design has limitations on the maximum compression force that can be used without risking tip damage due to over compression.

SMOOTHER EDGES, GREATER ACCEPTANCE

Based on clients' experiences and its own investigations, Natoli Engineering Company, Inc., a global leader in tablet compression products and services, recommends customers use the **flat faced radius edge (FFRE)** design rather than the FFBE design for their uncoated tablets.

“ Our recommendations are solely intended to benefit our clients” said Natoli. “We will not financially benefit if our clients use FFRE rather than FFBE tablet designs.”



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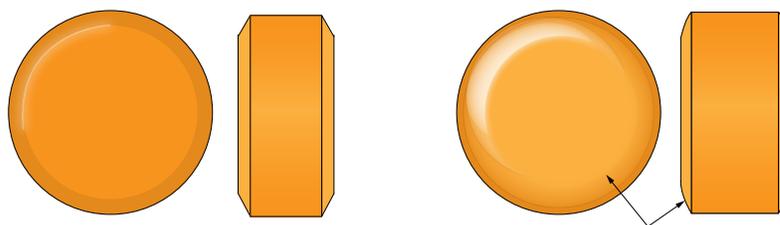
Finite element engineering analysis of the FFBE and FFRE designs for the same size tablet indicate a significant increase in the maximum compression force that can be utilized for tablet compression when using the FFRE design. This offers the manufacturer the option of using additional compression force, with no associated risk to the tablet press, to increase tablet breaking strength as opposed to changing the formulation to accommodate the desired increase in breaking strength. Tablets produced by high compression force are also less prone to edge erosion, sticking, and picking.

In the FFRE design, although they are sometimes visibly imperceptible, tablet edges are slightly smoother. Because of this, customers’ impression of the FFRE design is that of softer appearance and a pleasant mouth feel. Comfortable mouth feel can reduce the anxiety that elderly patients often experience with difficult to swallow tablets. These observations are important to providing the first impression appeal that is essential to establishing a successful product brand.

Natoli notes that a growing number of companies are adopting FFRE rather than FFBE for the manufacture of their uncoated flat faced tablets. This trend warrants consideration by companies seeking to produce quality tablets with greater consumer acceptance.

FFBE VS FFRE

The FFRE design features smoother edges than the FFBE.



FLAT FACE BEVEL EDGE

FLAT FACE RADIUS EDGE

INCREASE STRENGTH BY INCREASING BEVEL TO FLAT RADIUS

