

Choosing the Right Aluminum Foil

Much can be determined by the specifications of the aluminum foil you choose to wrap your product in. Yet still we receive countless inquiries from businesses who are simply looking to match old, incumbent-supplied, specification sheets. The purpose of this space here is to educate about what properties you can adjust in your aluminum foil and what those adjustments will result with on your packaging lines.

Temper

The temper of a material is best described as the hardness or elasticity of a metal or in our case of foil. The two extremes on the scale are labeled simply as **hard tempered** or **soft tempered foil**.

Soft tempered foil is by far the more common of the two in packaging as it is the more malleable of the two, and is best for holding a tight wrap around a three dimensional product such as a piece of chocolate or a stick of butter. Soft tempered foil is also the preferred foil for laminations.

Hard tempered foil on the other hand is most commonly used in more rigid packaging such as blister or pill packs. The relatively low burst strength of hard tempered foil makes it easier to push a single small object such as a pill or battery through the foil while keeping the rest of the structure intact.



Soft tempered foil allows a tight wrap around three denominational objects such as the chocolates



Hard tempered foil is more rigid and can be punctured without compromising its overall strength. It is ideal for blister packs as shown here.

Gauge

The **gauge**, or thickness, of aluminum foil can range from as thin as .235 mil to as thick as 2 mil. Often times foil at the lower end of this range is laminated to a film or paper whereas foil at the upper end can stand alone to wrap the top of a champagne bottle for example. **Gauge** is typically measured either in thousands of inches (a.k.a. Mil) or in micrometers (a.k.a. Microns). Most foil packaging use for food and confectionery packaging food lies between .23 mil and 1 mil. Below is a chart comparing the two measurements:

Mil Thickness	Micron Equivalent	Mil Thickness	Micron Equivalent
0.23	6	0.66	17
0.27	7	0.70	18
0.31	8	0.74	19
0.35	9	0.78	20
0.39	10	0.82	21
0.43	11	0.86	22
0.47	12	0.90	23
0.51	13	0.94	24
0.55	14	0.98	25
0.59	15	1.00	25.4
0.62	16		

Alloy

Once you've chosen the temper and gauge of your foil, you can then fine tune the properties of your wrap by changing its **alloy**. A change in alloy can affect **tensile strength**, **elongation**, and **burst strength**. The following chart shows the most common alloys and their characteristics:

Alloy	Tensile Strength	Elongation	Burst Strength
1100 Series	Lowest	Highest	Lowest
1200 Series	Middle	Lowest	Medium
8011	Highest	Medium	High
8079	High	High	Highest

Wettability

Wettability of a foil determines the overall quality of the print service that can be applied to that particular foil. There are three common grades of **wettability** of foil, all with varying **adhesion** levels, and each side of the foil can have a different grade. For instance, a common wettability grade for a foil candy wrap would be A/B, with any advanced graphics printed on the 'A side' of the structure. The following chart further breaks down the characteristics of each grade:

Grade	Characteristics
A	Premium foil with maximum ink adhesion. Best for printing.
B	Can be printed on if first flame, chemical, or electrically treated.
C	Non-food grade foil. Can be stamp printed but most advanced graphics will not adhere.