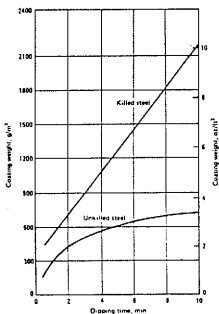


**Q. Dear Dr. Galv: What do I tell my customer when he wants a part galvanized to ASTM A123 but the minimum thickness he wants is 8 mils?**

**A.** This question shows the simple minded approach to galvanizing, **the thicker the coating the longer the part will last.** This is a true statement for nearly all environments but there is a practical limit as to how much zinc can be picked up by a part. For steels that are low in silicon and phosphorous the typical maximum pickup is approximately 3.5 oz/sq ft or almost 6.0 mils with an immersion time of 10 minutes. The customer needs to be informed of the practical limits of the galvanizing process. If the ASTM A123 minimum of 2.3 oz/sq ft or 3.9 mils is not adequate for his application, a duplex system of galvanized steel and paint may be suggested. With high silicon steels the thickness can be increased with longer immersion times, but a very thick zinc coating is susceptible to flaking and can be brittle due to the thick intermetallic.

**Fig. 4 Effect of kettle immersion time on silicon-coating weight for killed and unkilld steels**



Coating weights on silicon-killed and unkilld steels at a galvanizing temperature of 455 °C (850 °F). Killed steel: 0.35% carbon, 0.26% silicon, 0.46% manganese. Unkilld steel: 0.13% carbon, trace silicon, 0.40% manganese