Abstract:

Healthcare workers sustain sharps injuries in many ways including via needles penetrating sharps containers (SCs). Few published data exist on the parameters affecting SCs puncturing. This study examined the effect on puncture force of varying 5 needle gauges, 3 temperatures, and 3 container-wall thicknesses. Puncturing was significantly easier with higher temperatures, finer needles, and thinner walls. Puncture forces as low as 5.2 N indicate that with high temperatures and finer needles, 44% of containers would not meet the 15 N required by ISO, and 66% would not meet 20 N. Tougher puncture testing procedures need to be considered as modern engineering and technology enable safer SCs to be produced.

Reference: