

Impact of Punch Cup Depths on USP <1062> Profiles

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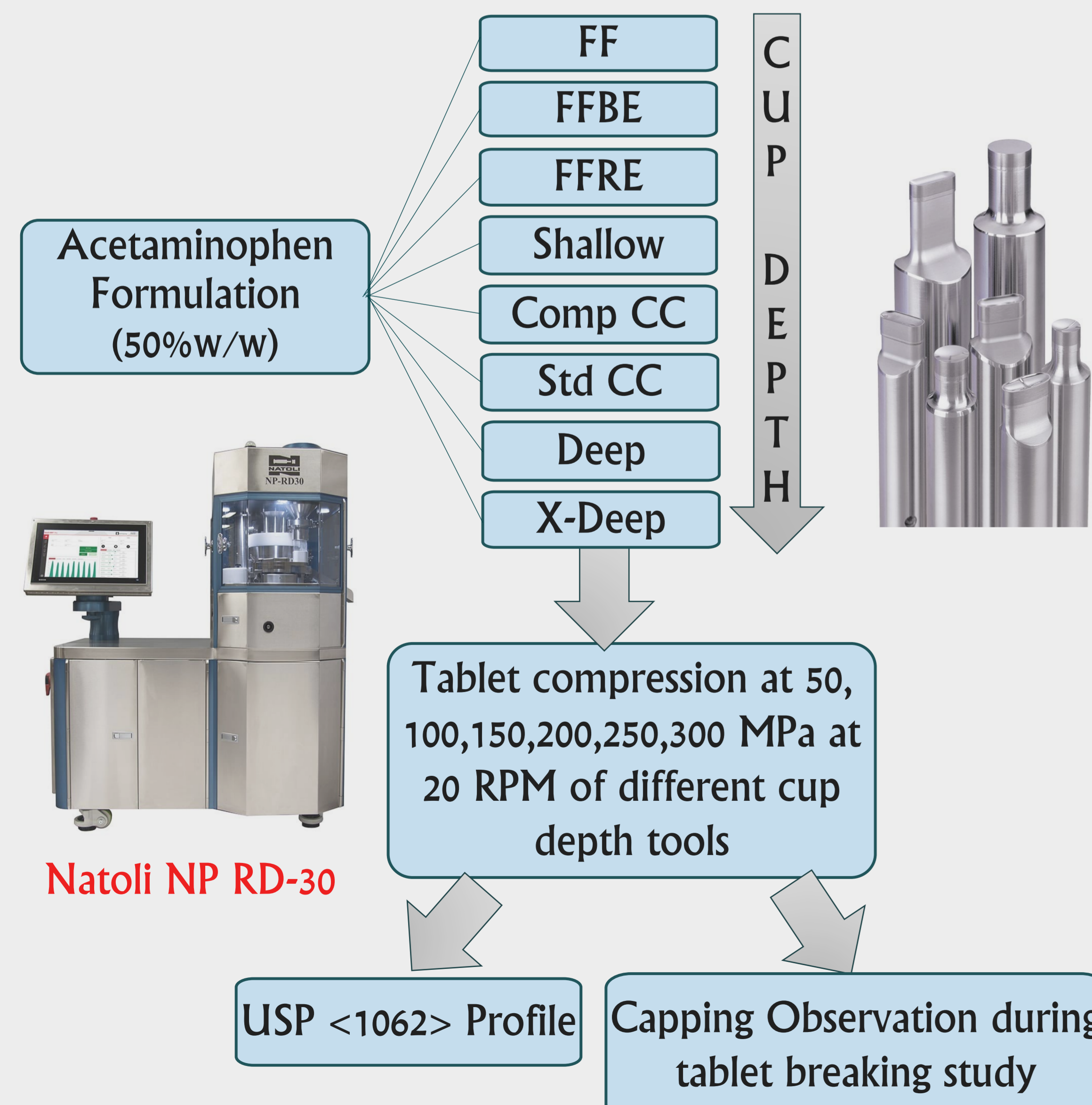


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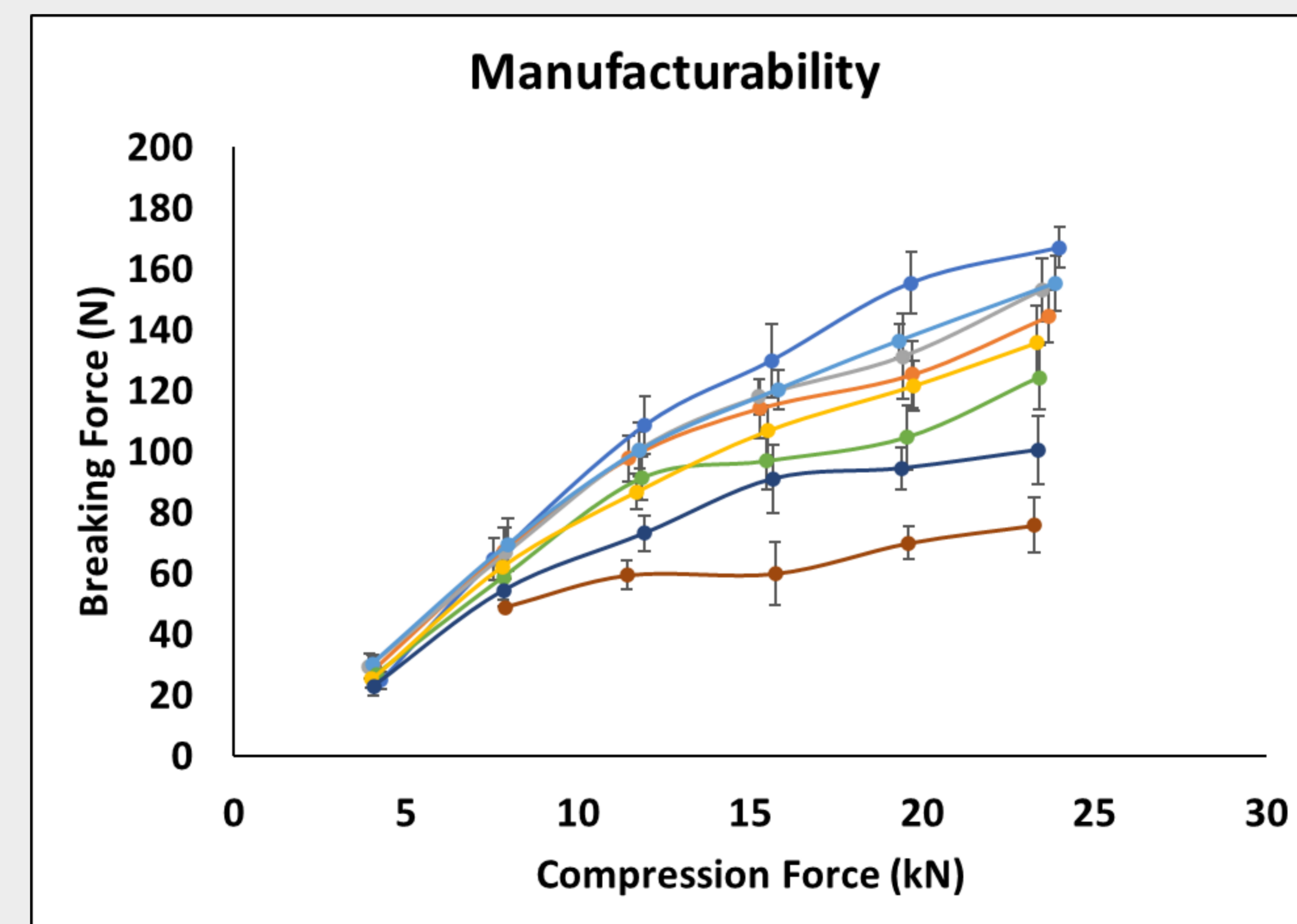
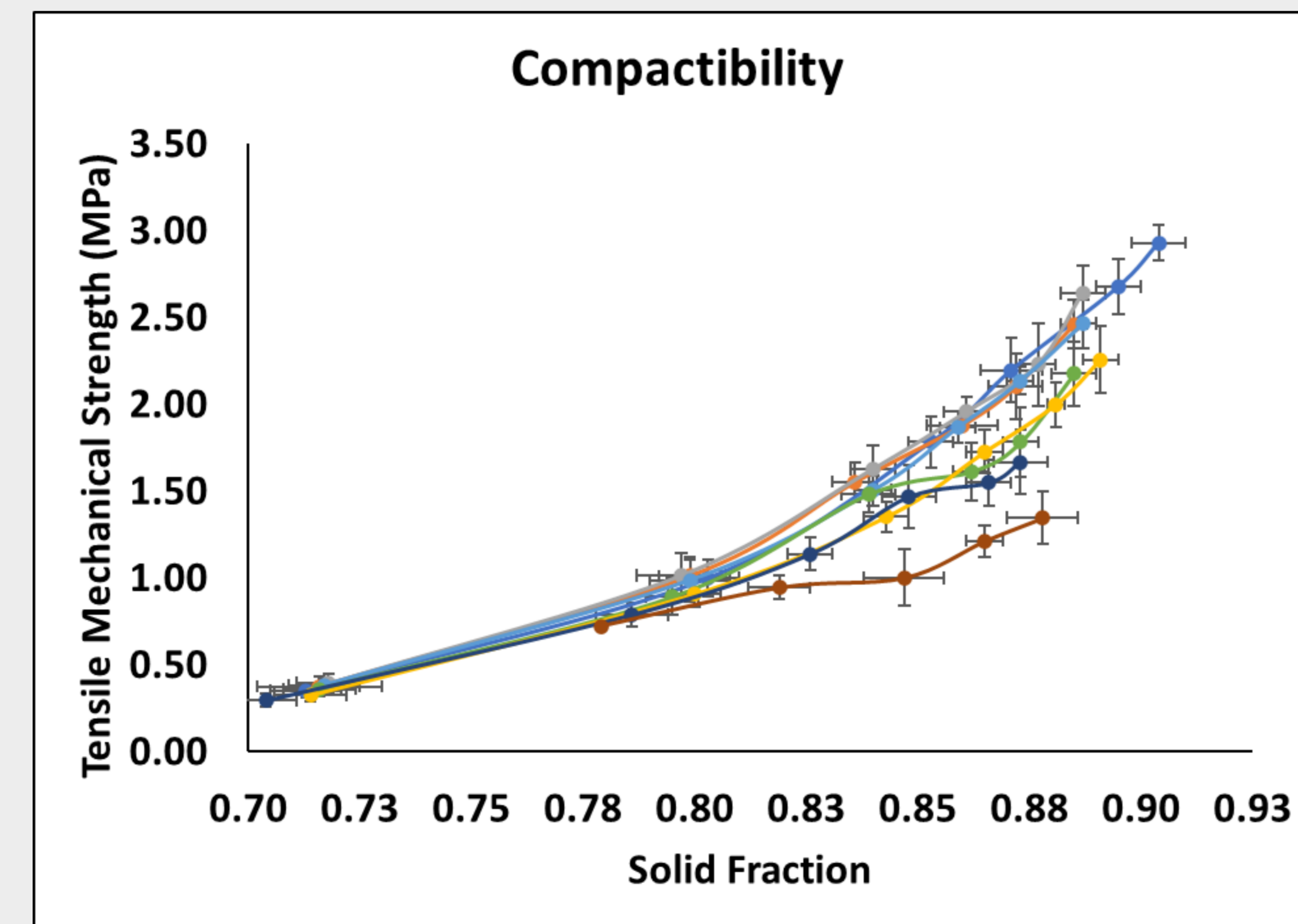
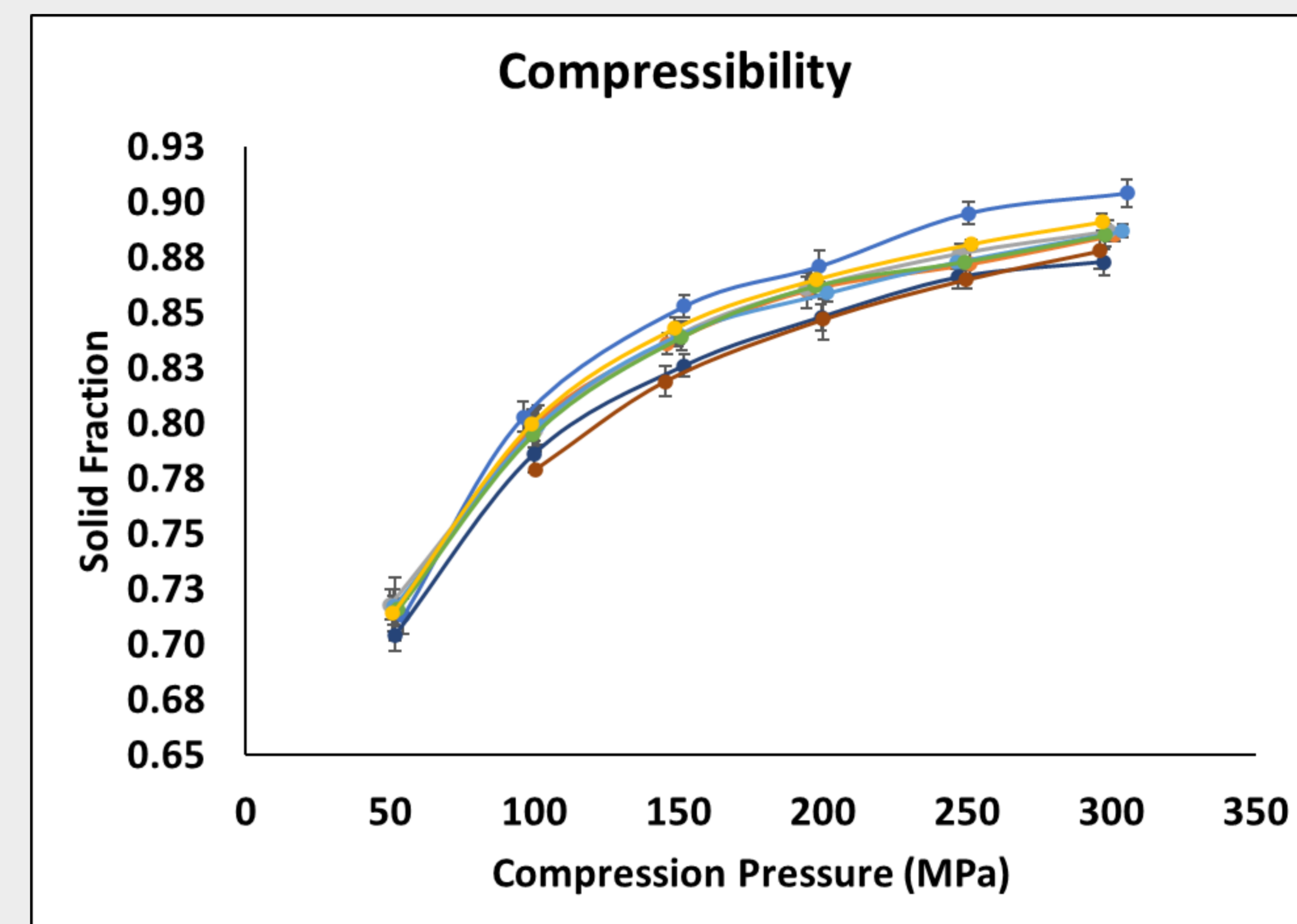
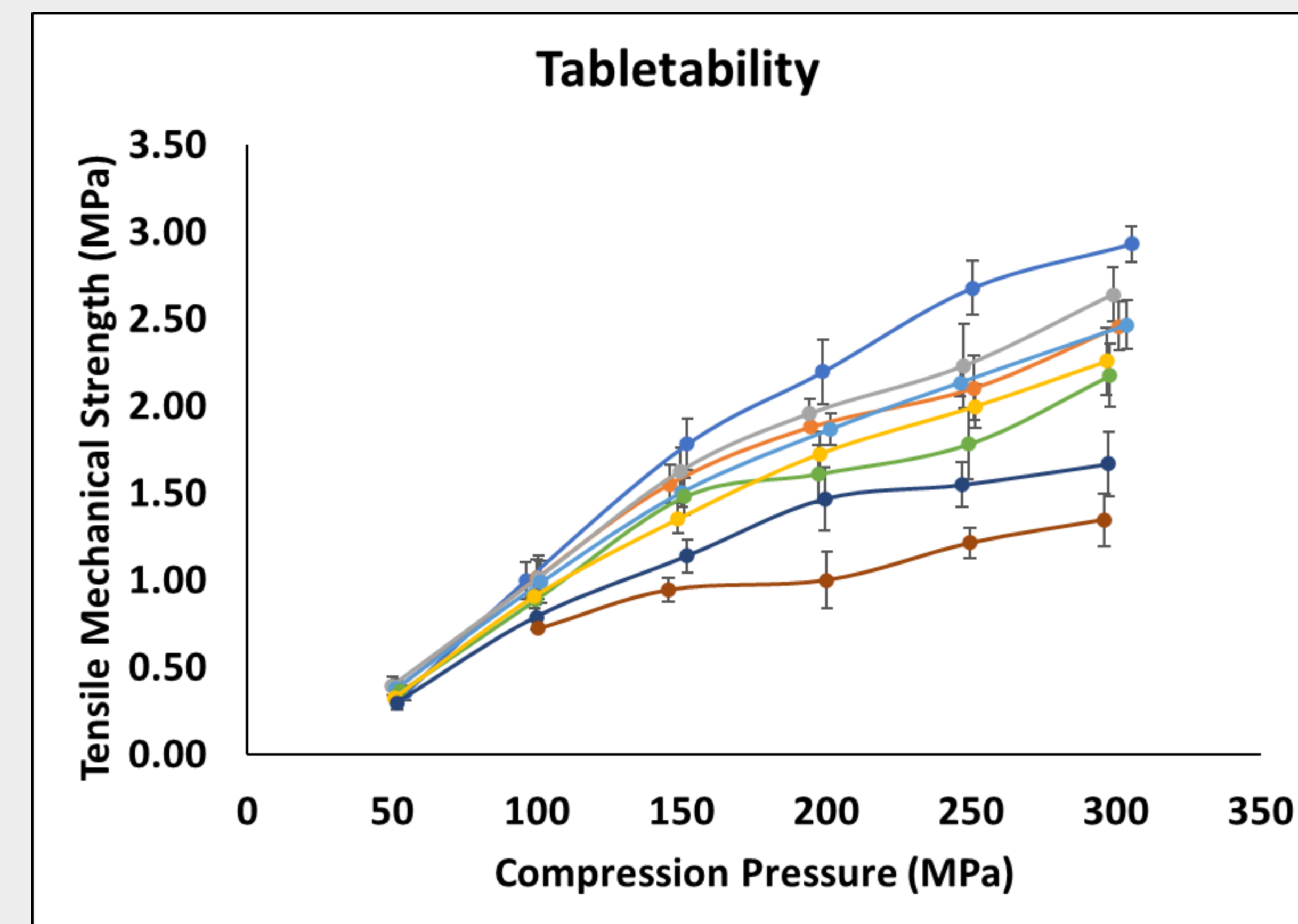
PURPOSE

- USP <1062> Tablet Compression Characterization, first published in 2017, offers universal guidelines on how to achieve robust tableting. It provides guidelines for standardized compression test procedures.
- Tablet capping is the most prominent tablet defect that can occur during tablet manufacturing. One of the main reasons for the tablet capping phenomenon is the use of tools with improper tooling design specially the cup depth.
- It is essential to evaluate the impact of tools with different punch cup depths on USP <1062> profile and tablet capping.

METHODS



RESULTS

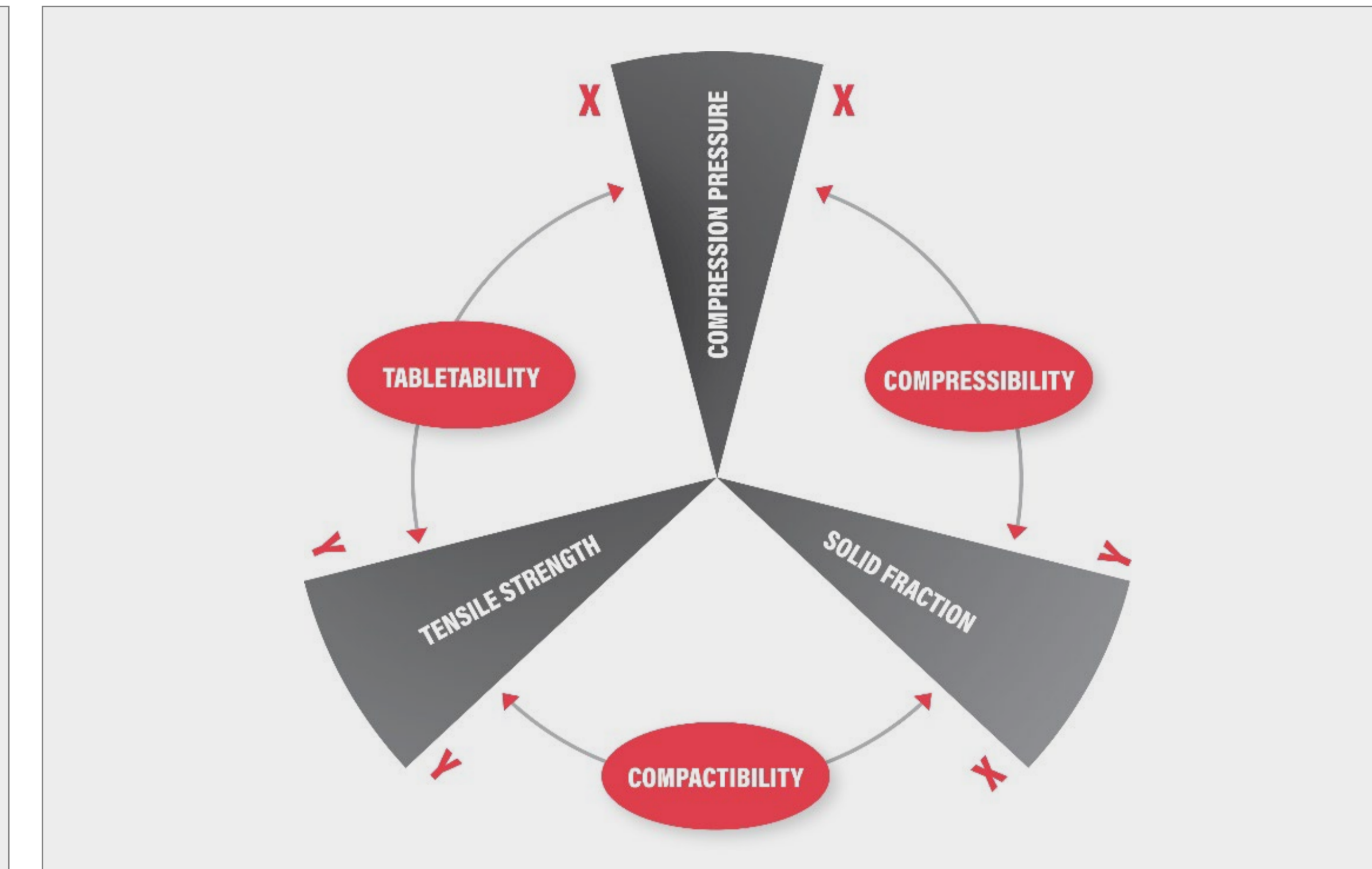


Tool	Cup Depth (mm)
Flat Face	0
FFBE	0.38
FFRE	0.38
Shallow	0.41
Comp CC	0.89
Std CC	0.94
Deep	1.3
X-Deep	1.91

Legend for graphs:

- Flat Face (Blue)
- FFBE (Orange)
- FFRE (Grey)
- Shallow Concave (Light Blue)
- Compound Concave (Green)
- Std Concave (Yellow)
- Deep Concave (Dark Blue)
- X-Deep Concave (Brown)

Tensile Strength at 150 MPa, 20 RPM:
 FF > FFRE > FFBE > Shallow > Comp CC > Std CC > Deep > X-Deep



CONCLUSIONS

- USP <1062> profile:
 - Helps to evaluate the possible impact of the cup depth changes on the tablet compression profile.
 - Guides to optimize the tablet compression conditions needed to achieve robust tableting.

