INTRODUCTION

Dry binders are frequently required ingredients in tabletting formulations. In particular, in directly compressible formulations, those excipients are added in order to achieve the required tablet strength.

An ideal dry binder should offer small particle size (large surface area) and high elasticity [1]. A polymer frequently used for this purpose is copovidone [2].

The aim of this study was the comparison of two copovidone grades, varying in their individual particle sizes and investigating their impact on tabletting characteristics and tablet strength.

MATERIALS AND METHODS

A tabletting formulation containing Caffeine, as model active pharma-ceutical ingredient, dibasic calcium phosphate (anhydrous), and magne-sium stearate was selected for this investigation (Table 1). Two grades of copovidone (a copolymer of vinyl pyrrolidone and vinyl acetate) Kollidon® VA 64 and Kollidon® VA 64 Fine (Figure 1, Figure 2), distinctively varying in particle size (Table 3), were added in quantities of 1.5, 2.5 and 5.0% (Table 2) to investigate their impact on the tabletting characteristics and final tablet strength.

RESULTS AND DISCUSSION

Nowadays, numerous tablets are film-coated in drum coating processes. Due to the mechanical stress applied during this procedure, a tensile strength value of 1.8 N/mm² is typically required for these tablets.

The compressibility of the formulations containing Kollidon® VA 64 Fine seemed to be more homogeneous. Hardly any difference could be seen for all four blends (Figure 4).

However, bondability was clearly depending on the copovidone concentration in the formulation, whereas an increasing Kollidon® VA 64 Fine content led to decisively higher tensile strength values.

CONCLUSION

Adding copovidone to a tabletting formulation increased its bondability. Furthermore, resulting in tablets of higher tensile strength. The specific impact was affected by the copovidone’s particle size and content, whereas smaller particles and higher contents led to tablets of higher tensile strength.

In regard to their individual performance, 5.0% of Kollidon® VA 64 showed similar results compared to 2.5% Kollidon® VA 64 Fine.

Introducing copovidone to a tabletting formulation, either distinctively increased tensile strength values at a given solidification, or markedly lowered the compression pressures required to achieve an adequate tablet strength.

REFERENCES

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