The enzymatic degradation of polymer depends upon several factors: chemical structure(s), molecular mass, configuration, hydrophilic/hydrophobic balance, morphology, segmental mobility, crystallinity and their possible interactions. It appears interesting to explore the influence of these factors upon biodegradability of synthetic aliphatic polyesters. For this reason a series of high molecular mass aliphatic homo- and co-polymers (Table 1) was synthesized from 1,4-butanediol and dimethylol of succinic and sebacic acids.

**X-RAY CRYSTALLINITY INDEX and NORMALISED WEIGHT LOSS of P(BSu-co-BSe) copolymers**

Table 1 shows a maximum biodegradation degree at 70 mol% of BSu while the crystallinity index and molar mass of PBSe homopolymer are the highest. Furthermore, P(BSu-co-BSe) 50/50 and 30/70 have a different molar mass as shown in (Tab. 1).

In this work, high molecular mass aliphatic polyesters (Tab. 1) were synthesized using the policondensation process shown in Scheme 1. The use of 10% excess of 1,4-butanediol in the policondensation reaction was found essential to increase the polymer viscosity and consequently to obtain materials showing good filmability. The die swell was justified by the observation that during the reaction the die was partially removed from the flask by the nitrogen stream and by the vacuum, restraining the polymerization reaction from going ahead.

The P(BSu-co-BSe) 70/30, as an example, was synthesized using a stoichiometric amount either using an excess of 10% of 1,4-butanediol and a sharp increase in molar mass.

Furthermore, P(BSu-co-BSe) 50/50 and 30/70 have different molar masses but comparable normalised weight loss (Tab. 2). Molar mass values show a significant influence on the biodegradation degree.

**REFERENCES**