level in the atmosphere is necessary to avoid growth of certain pathogen anaerobic bacteria, like Clostridium botulinum.

To keep a certain low oxygen level in the package, it is necessary to match the ingress of oxygen into the package with the rate of oxygen consumption by the oxygen scavenging composition. This could potentially be achieved by lowering the content of oxygen scavenging composition in the package. However, this would come at the expense of the overall oxygen scavenging capacity of the package, thereby reducing the shelf life of the contained product article.

It is therefore desirable to provide an oxygen scavenging system, which is able to finely tune the rate of oxygen scavenging reaction to a desired reduced level and to maintain this level over the intended shelf-life of the product, thus providing high scavenging capacity.

It was found surprisingly that certain polyether-polyester copolymers as hereinafter described can effectively be used to effect and control oxygen scavenging in a thermoplastic material.

## SUMMARY OF THE INVENTION

In one aspect, there is provided a polyether-polyester copolymer comprising
(i) polyether segments wherein at least one polyether segment contains at least one polytetramethylene oxide segment,
(ii) polyester segments,
(iii) bridging elements of the structure –CO-R2-CO-, wherein R2 represents an optionally substituted bivalent hydrocarbon residue consisting of 1 to 100 carbon atoms;
(iv) one or two end-caps R1-O-($C_2$-$C_4$-O-)$_e$-*, wherein R1 is an optionally substituted hydrocarbon residue and e is an integer of from 0 to 1000.

In another aspect, there is provided a method of preparing a polyether-polyester copolymer as described herein comprising a polycondensation of the polyether segments containing at least one polytetramethylenoxide segment, the polyester segments, the bridging elements and the end-caps.

In another aspect, there is provided an active oxygen barrier composition comprising a polyether-polyester copolymer as described herein and a transition metal catalyst.

In another aspect, there is provided a plastic material comprising:
a component a) which is a thermoplastic polymer;
a component b) which is a polyether-polyester copolymer as described herein; and
a component c) which is a transition metal catalyst.

A subject of the present invention is a polyether-polyester copolymer comprising

(i) polyether segments wherein at least one polyether segment contains at least one polytetramethylene oxide segment,

(ii) polyester segments,

(iii) bridging elements of the structure –CO-$R^2$-CO-, wherein $R^2$ represents an optionally substituted bivalent hydrocarbon residue consisting of 1 to 100 carbon atoms wherein the substituents are preferably $C_1$-$C_5$-alkoxy, nitro, cyano or sulfo or a combination thereof;

(iv) one or two end-caps $R^1$-O-($C_2$-$C_4$-O-)$_e$-*, wherein $R^1$ is an optionally substituted hydrocarbon residue and e is an integer of from 0 to 1000.