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(54) Title: PROCESS FOR PREPARING AN OLEFIN OXIDE

$$\sigma^n(k) = \frac{\sigma(F_E(k))}{F_E^n(k)} \leq 0.4 \quad (1)$$

$$\sigma(F_E(k)) = \sqrt{\frac{\sum_{i=1}^n (F_S(k,i) - F_E^n(k))^2}{n}} \quad (2)$$

$$F_E^n(k) = \frac{F_E(k)}{n} \quad (3)$$

(57) Abstract: The present invention relates to a process for preparing an olefin oxide from a reaction mixture stream in an epoxidation reactor R, wherein R contains z active reaction tubes T(i) arranged in parallel, $z \geq 2$, $i=1 \dots z$, wherein each T(i) comprises a reaction zone Z(i) comprising a heterogeneous epoxidation catalyst, said reaction mixture stream comprising x components C(j), $x \geq 3$, $j=1 \dots x$, the process comprising (i) providing m educt streams E(k), $m \geq 1$, $k=1 \dots m$, wherein each E(k) exhibits a mass flow rate $F_E(k)$ and comprises y components C(j), $y=1 \dots x$, wherein a given component C(j) is contained in at least one E(k); (ii) dividing each E(k) into n educt substreams S(k,i), $n \leq z$, each S(k,i) exhibiting a mass flow rate $F_S(k,i)$, wherein to at least one E(k), the inequality (1) applies: Formulas (1), (2), (3), (iii) providing n reaction mixtures streams M(i) comprising the x components C(j), said providing comprising, for each i, either combining and admixing the n educt substreams S(k,i) obtaining the n reaction mixtures M(i) if $m > 1$, or passing on the n educt substreams S(k,i) as the n reaction mixtures M(i) if $m=1$; (iv) feeding each M(i) obtained according to (iii) into Z(i) and contacting each M(i) in Z(i) with the epoxidation catalyst under epoxidation reaction conditions; wherein the x components C(j) comprise hydrogen peroxide, an organic solvent, and the olefin. The present invention further relates to an olefin oxide obtained or obtainable from said process.

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