

### **fractional selectivity (in catalysis)**

The term *selectivity* ( $S$ ) is used to describe the relative rates of two or more competing reactions on a *catalyst*. Such *competition* includes cases of different reactants undergoing simultaneous reactions or of a single reactant taking part in two or more reactions. For the latter case,  $S$  may be defined in two ways.

The first of these defines a fractional selectivity,  $S_F$ , for each product by the equation

$$S_F = \xi_i / \sum \xi_i$$

The second defines relative selectivities,  $S_R$ , for each pair of products by

$$S_R = \dot{\xi}_i / \dot{\xi}_j$$

In each case,  $\dot{\xi}_i$  and  $\dot{\xi}_j$  are the rates of increase of the *extent of reactions*  $i$  and  $j$  respectively, i.e.

$$\dot{\xi}_i = d\xi_i/dt \quad \text{and} \quad \dot{\xi}_j = d\xi_j/dt$$

where  $\xi_i$  and  $\xi_j$  are the extents of reactions  $i$  and  $j$  respectively.

1976, 46, 81