

stereospecificity (stereospecific)

1. A reaction is termed stereospecific if starting materials differing only in their configuration are converted into stereoisomeric products. According to this definition, a stereospecific process is necessarily stereoselective but not all stereoselective processes are stereospecific. Stereospecificity may be total (100%) or partial. The term is also applied to situations where reaction can be performed with only one stereoisomer. For example, the exclusive formation of *trans*-1,2-dibromocyclohexane upon bromination of cyclohexene is a stereospecific process, although the analogous reaction with (*E*)-cyclohexene has not been performed.
2. The term has also been applied to describe a reaction of very high stereoselectivity, but this usage is unnecessary and is discouraged.

Source:

PAC, 1994, 66, 1077 (*Glossary of terms used in physical organic chemistry (IUPAC Recommendations 1994)*) on page 1167

PAC, 1996, 68, 2193 (*Basic terminology of stereochemistry (IUPAC Recommendations 1996)*) on page 2219