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Darbhanga.

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Topic : CATALYTIC REACTIONS.

Catalytic reactions are broadly classified into two classes.

(a) Homogeneous Catalytic Reactions.

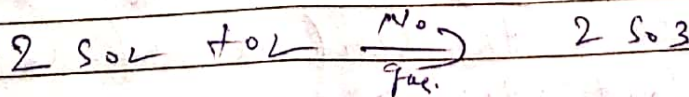
(b) Heterogeneous Catalytic Reaction

Homogeneous Catalytic Reaction

These chemical reactions in which both reactants and catalyst are in same phase <sup>are</sup> called Homogeneous Catalytic reactions.

oxidation of sulphur dioxide ( $\text{SO}_2$ )

with  $\text{O}_2$  in presence of  $\text{NO}$  (Nitric oxide) is an example of Homogeneous Catalytic Reaction.



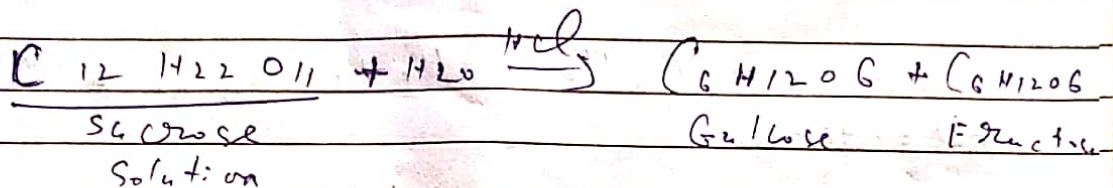
In the above example both reactants

$\text{SO}_2$ ,  $\text{O}_2$  as well as catalyst  $\text{NO}$

are in same phase, therefore it is

Homogeneous Catalytic reaction.

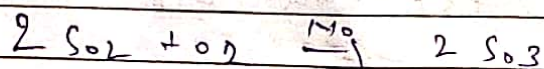
Other examples of Homogeneous Catalytic reaction are



The above reaction is also an example of Homogeneous Catalytic reaction because both reactants and catalyst are in same liquid phase.

As far as Mechanism followed during Homogeneous Catalytic reaction is theory of intermediate compound formation.

This theory is explained as.



The above reaction follows following path.



Thus we see that  $\text{NO}$  catalyst changes into  $\text{NO}_2$  on oxidation which is an Intermediate. This intermediate finally oxidises  $\text{SO}_2$  into  $\text{SO}_3$ . This theory is proposed for HOMOGENEOUS CATALYTIC REACTIONS.