



16. Match the catalysts to the correct processes:

Catalyst Process

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|----------------------------|-------------------------------------|
| (A) TiCl_3 | (i) Wacker process |
| (B) PdCl_2 | (ii) Ziegler - Natta polymerization |
| (C) CuCl_2 | (iii) Contact process |
| (D) V_2O_5 | (iv) Deacon's process |

(1) $A \rightarrow (\text{iii}), B \rightarrow (\text{ii}), C \rightarrow (\text{iv}), D \rightarrow (\text{i})$

(2) $A \rightarrow (\text{ii}), B \rightarrow (\text{i}), C \rightarrow (\text{iv}), D \rightarrow (\text{iii})$

(3) $A \rightarrow (\text{ii}), B \rightarrow (\text{iii}), C \rightarrow (\text{iv}), D \rightarrow (\text{i})$

(4) $A \rightarrow (\text{iii}), B \rightarrow (\text{i}), C \rightarrow (\text{ii}), D \rightarrow (\text{iv})$

Answer:

(A) $\text{TiCl}_3 \rightarrow$ Ziegler-Natta polymerisation (Catalyst for polymerisation ethylene and olefins).
Ziegler-Natta catalysts are used to polymerize terminal 1-alkenes (ethylene and alkenes with the vinyl double bond)

(B) $\text{V}_2\text{O}_5 \rightarrow$ Contact process (for producing Sulphuric acid)

(C) $\text{PdCl}_2 \rightarrow$ Wacker process (an industrial process for the manufacture of ethanol by oxidizing ethene)

(D) $\text{CuCl}_2 \rightarrow$ Deacon's process (The reaction takes place at about 400 to 450 °C in the presence of catalysts copper chloride (CuCl_2) for producing chlorine gas from hydrochloride)

We know that in contact process of making sulphuric acid vanadium pentoxide (V_2O_5) is used in given option $D \rightarrow (\text{iii})$ only in option (2),

so correct choice is option (2)