k_{cat}

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How to calculate K_{cat} in terms of s^{-1} or moles product per moles enzyme per second

(moles product * molecular weight of ezyme, Da = g/mol) ÷ (amount of enzyme used, g * number of seconds reaction too place) = mol product * mol enzyme^{-1} * s^{-1} or simply s^{-1}

Example :
Eucalyptus isoprene synthase = 68 kDa or 68000 g/mol
The reaction produced 0.13 nmol isoprene
0.71 µg protein was added to the reaction vial
The reaction took 12 minutes

($0.13x10^{-9}$ moles isp * 68000 g mol^{-1}) ÷ ($0.71x10^{-6}$ g isp synthase * 12 min * 60 sec min^{-1}) = 0.017 mol isp mol^{-1} isp synthase s^{-1} or 0.017 s^{-1}