**Answer on Question #79489, Chemistry/ General Chemistry**

the mass of carbon produced by 1 tonne of octane

**Solution**

Decomposition of octane under certain conditions leads to formation of carbon and hydrogen:

$C_8H_{18} \rightarrow 8C + 9H_2$

n=m/M

$M(C_8H_{18}) = 12\times8 + 1\times18 = 114$ (g/mol)

$n(C_8H_{18}) = \frac{1\times10^6\ g}{114\frac{g}{mol}} = 8772\ mol$

According to equation mole ratio $n(C_8H_{18}) : n(C) = 1:8$, then $n(C) = 8\times n(C_8H_{18})$ ;

$n(C) = 8772\ mol \times 8 = 70176\ mol$

$m(C) = M\times n$

$m(C) = 12\ g/mol \times 70176\ mol = 842112\ g \cong 0.84$ tons

**Answer: 0.84 tons**

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