

The default values considered for the energy consumption for thermal cracking and the subsequent polymerization have been adopted from the International Energy Agency's information paper on 'Potential best practice technology and other measures for improving energy efficiency for the Chemical and petrochemical sector, 2009' as it takes into consideration the best practice values for energy requirements and is the most conservative published source.

The production of PET is a three stage process. Firstly the thermal cracking of Naphtha yields Ethylene and Paraxylene which in turn produces Mono Ethylene Glycol (MEG) and Purified Terephthalic Acid (PTA) respectively. These are the raw materials for the production of solid state PET. The third and the final process involve the esterification and polymerization of PET from PTA and MEG. Adopting a conservative approach we have neglected the energy requirement for the production of PTA and MEG and considered the energy intrinsic process of steam cracking, esterification and polymerization only. However, in practice, the energy consumption in non Annex I countries will be much higher as compared to the best practice technologies. The sources of proposed default values are as tabulated below:

Sr. No	Parameter	Source	Value	Justification
1.	$SFC_{bl,i}$  Specific Fuel Consumption for production of virgin material	AMSIII AJ, Para 5.(i)	15GJ/t	The value for thermal cracking has been taken as 15 GJ/t as specified in the approved methodology for the production of Ethylene and paraxylene which are the key raw materials for manufacturing of MEG and PTA respectively.
2.	$SEC_{bl,i}$  Specific Electricity consumption for the production of virgin material	IEA (Potential best practice technology and other measures for improving energy efficiency for the Chemical and petrochemical sector )2009, Table 1,Primary energy terms	5.9 GJ/t	The specific electricity consumption for production of PET has been calculated by adding the total specific energy consumption in primary energy terms. During the polymerization process there is heat required for the treatment of the amorphous chips which is provided by steam. However the energy requirement from steam, for PET, is not mentioned in IEA database. Hence the energy supplied by fuel is taken into account for the steam requirement of the process and is added to the electricity requirement of the process. The values specified in the IEA paper are the Best practice values and hence considered as conservative.