

## TASK 2. SOLUTION

We calculate the contribution of each material input in terms of mass, energy and emissions of carbon dioxide.

Material input	Mass (kg)	Energy (MJ)	CO <sub>2</sub> eq. emissions (kg CO <sub>2</sub> eq.)	Mass contribution (%)	Energy contribution (%)	CO <sub>2</sub> eq. emissions contribution (%)
Steel bar	400	3600	160	93.98	80.10	77.30
Cutting fluid	2	136	7.2	0.47	3.03	3.48
Paint	0.6	40.8	2.16	0.14	0.91	1.04
Cardboard packaging	20	500	30	4.70	11.13	14.49
Steel fasteners	0.5	17.5	1.38	0.12	0.39	0.67
Plastic casing	2.5	200	6.25	0.59	4.45	3.02
<b>Total</b>	<b>425.6</b>	<b>4494.3</b>	<b>206.99</b>			

Those materials that contribute less than 1% in mass, energy and CO<sub>2</sub> emissions will be excluded. Cutting fluid and plastic casing only fulfil the mass criterion and paint both mass and energy, but not the CO<sub>2</sub> emissions.

The only input that contribute less than 1% in the three criterion is steel fasteners.

Material input	Input mass (kg)	Energy to manufacture input (MJ)	CO <sub>2</sub> eq. emissions of input manufacture (kg CO <sub>2</sub> eq.)	Acceptable to exclude? Enter "Yes" or "No"
Steel bar	400	3600	160	Yes
Cutting fluid	2	136	7.2	Yes
Paint	0.6	40.8	2.16	Yes
Cardboard packaging	20	500	30	Yes
<b>Steel fasteners</b>	<b>0.5</b>	<b>17.5</b>	<b>1.38</b>	<b>No</b>
Plastic casing	2.5	200	6.25	Yes