

## Cyclopentane as a blowing Agent for PU foam at two Brazilian Companies

**Table 1: Total cost for the Projects**

<b>Investment</b>	<b>Eletrofrio</b>	<b>Crios</b>
<b>Investimento</b>	<b>US\$ 463 970</b>	<b>US\$ 315 700</b>
<b>10% contingency</b>	<b>US\$ 46 397</b>	<b>US\$ 31 570</b>
<b>Incremental operating cost</b>	<b>US\$ 100 293</b>	<b>US\$ 10 000</b>
<b>13% agency's overhead</b>	<b>US\$ 79 384</b>	<b>US\$ 46 445</b>
<b>Amount requested</b>	<b>US\$ 690 033</b>	<b>US\$ 403 715</b>

## Cyclopentane as a blowing Agent for PU foam at two Brazilian Companies

**Table 2: consumption of PU foam raw materials for Eletrofrío**

Year	Isocyanate	Polyol	Cyclopentane
2001	58,600	51,600	still R-141b
2007	245,950	185,700	22,000

# Cyclopentane as a blowing Agent for PU foam at two Brazilian Companies

**Table 3: Project Crios – equipment specifications and cost breakdown**

Item	Description of activity	Quantity	Unit cost US\$	Total US\$
1	High pressure foaming machine incl. metering pump, mixing heads, control panel, two vessels each 200 lit. with stirring equipment, with an output of up to 10 kg a shot	1	140 000	140 000
2	Premixing station	1	60 000	60 000
3	Gas detection system (pentane sensors)	10	2.500	25.000
4	Exhaust and ventilating system (ex-proof ventilators and motors, flow sensors)	1	Crios contribution	
5	Cyclopentane system incl. transfer pump and safety equipment	1	5 000	5 000
6	Low and high pressure circulating system	1	10 000	10 000
7	Control and monitoring system	1	12 500	12 500
8	Modification of jigs and fixtures (design)	44	3.000	13.200
9	Nitrogen inertisation ring line	1	Crios contribution	
10	Emergency generator	1	Crios contribution	
11	Engineering, commissioning, start-up, training	1	20 000	20 000
12	Safety certification	1	15 000	15 000
13	Training of the staff	1	15 000	15 000
Total funds request				315 700