

**EUROPEAN COMMISSION  
DG RESEARCH**

**SEVENTH FRAMEWORK PROGRAMME  
THEME 5 - Energy  
Energy.2007.5.1.3: Advanced separation techniques  
Collaborative Project– GA No. 213569**



**CESAR  
CO<sub>2</sub> Enhanced Separation and Recovery**

Deliverable No.	CESAR D1.3.2 (Public summary)	
Deliverable Title	Definition of the Test Module (Public Summary)	
Dissemination level	Public	
Written By	Daniel Ferré (IFP)	January 19 <sup>th</sup> 2010
Checked by	Paul Broutin (IFP)	January 19 <sup>th</sup> 2010
Approved by	Peter Van Os (TNO)	March 23 <sup>rd</sup> , 2010
Main conclusions	Definition of the 10 m <sup>2</sup> modules to be built by Polymem for testing at IFP-Lyon	
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## **CESAR Deliverable D1.3.2: Publishable Executive Summary**

The design of the module to be tested by IFP has been achieved to demonstrate good performances of membrane contactors compared to classical packing towers. Consequently, we need a disposition of the hollow fibers which produces a very high specific area. This leads to choose the finest fibers and simultaneously reduce the space between the fibers i.e. the packing density. Obviously, doing this increases the pressure drops both on the gas and the liquid sides.

CESAR Deliverable D132 describes the method used to determine the optimal module configuration which would maximize the fibers packing density for an acceptable low pressure drops of the gas and the liquid.

The fibers dimensions being more or less imposed at this prototype manufacturing stage, we found the following optimal configuration :

- 10 cm in diameter
- 1 m long
- 10,000 fibers for a total exchange area of 5 m<sup>2</sup> for the internal surface, and 12 m<sup>2</sup> for the external surface.
- The pressure drop on the gas side will be of order of 20 mbar, while the pressure drop on the liquid side will be about 400-500 mbar.