

## GasCAD™ Sizing Program for Liqui-Cel® Membrane Contactors is now Available

Membrana has introduced a new sizing program for Liqui-Cel Membrane Contactors. GasCAD™ version 1.0 has now been released for OEM use for planning and sizing water degassing systems.

Historically Membrana has used a sizing program in Excel for sizing 2, 4, and 10-inch Liqui-Cel Membrane Contactors. The new program also includes sizing regressions for the new 6-inch NB and Extra-Flow Contactors.

The new program also has a different look and feel to it. While Excel is still used as the backbone for calculations, the user interface for sizing 4, 6, and 10-inch contactors have been simplified.

Illustration 1 shows the new user interface. At the top left of the screen the user inputs the design criteria for the system. The user can view the performance of the current configuration by looking at the outlet ports on the graphic illustration of the contactor.

If a lower gas outlet is required, the user

can go to the "Iteration Parameter" section at the bottom right of the screen to increase the sweep into the contactors, change the vacuum level or add additional contactors. Once the desired outlet gas concentration is achieved in the sizing scenario, the user can click on the "Go" button located above the contactor illustration to get a summary sheet that is formatted for printing (See Illustration 2).

Additionally, there is a calculator built into the program that will calculate the free CO<sub>2</sub> entering the contactors based on the alkalinity and the pH of the inlet stream.

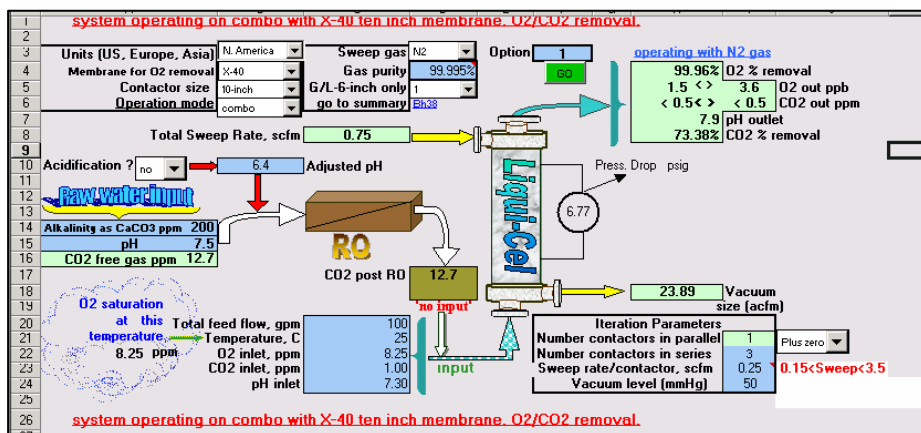
The interface for the 2-inch regression information is unchanged from its earlier

Illustration 2: A snapshot of the summary sheet

Liqui-Cel® Membrane Contactors Design Estimate				
To: _____				
End User: _____				
Ref.#: _____				
Design Criteria	1	2	3	4
Contactors Size	10-inch	10-inch	10-inch	
Membrane Type	X-40	X-40	X-40	
Feed Flow (gpm)	1167.0	1167.0	1167.0	
Temperature (F)	68	68	68	
(C)	20	20	20	
pH	7.3	7.3	7.3	
Component Concentrations (ppb)				
"Inlet"				
O <sub>2</sub>	9,048	9,048	9,048	
N <sub>2</sub>	14,893	14,893	14,893	
CO <sub>2</sub> (free)	1,000	1,000	1,000	
"Average Outlet"				
O <sub>2</sub>	52	99	29	
N <sub>2</sub>	1,347	1,418	1,313	
CO <sub>2</sub> (free)				
"Maximum Outlet"				
O <sub>2</sub>	89	166	53	
CO <sub>2</sub> (free)	722	761	687	
Minimum Gas Removal				
O <sub>2</sub>	99.01%	98.16%	99.42%	
CO <sub>2</sub> (free)	27.82%	23.91%	31.29%	
No. of Contactors Required	18	15	21	
No. Parallel Trains	6	5	7	
No. in Series	3	3	3	

version and is a separate excel worksheet in the GasCAD™ Program. The summary page for the 2-inch program is located at the bottom of the 2-inch sizing input area. It looks the same as what is depicted in Illustration 2.

Illustration 1: The New Interface for 4, 6, 10-inch GasCAD™ Program



The new program and a full reference guide are now available from your Membrana Representative.

If you prefer that Membrana employees continue to size your system applications we are always happy to supply that continued support and service as well.

As always, no warranty is implied from calculations completed by non-Membrana employees. All sizing scenarios will need to be verified by Membrana representatives if performance warranties are needed.

This product is to be used only by persons familiar with its use. It must be maintained within the stated limitations. All sales are subject to Seller's terms and conditions. Purchaser assumes all responsibility for the suitability and fitness for use as well as for the protection of the environment and for health and safety involving this product. Seller reserves the right to modify this document without prior notice. Check with your representative to verify the latest update. To the best of our knowledge the information contained herein is accurate. However, neither Seller nor any of its affiliates assumes any liability whatsoever for the accuracy or completeness of the information contained herein. Final determination of the suitability of any material and whether there is any infringement of patents, trademarks, or copyrights is the sole responsibility of the user. Users of any substance should satisfy themselves by independent investigation that the material can be used safely. We may have described certain hazards, but we cannot guarantee that these are the only hazards that exist.

Liqui-Cel, Celgard, SuperPhobic and MiniModule are registered trademarks and NB is a trademark of Membrana-Charlotte, A division of Celgard, LLC and nothing herein shall be construed as a recommendation or license to use any information that conflicts with any patent, trademark or copyright of Seller or others.

©2007 Membrana - Charlotte A Division of Celgard, LLC (TB30Rev310-05)

**Membrana - Charlotte**  
A Division of Celgard, LLC  
13800 South Lakes Drive  
Charlotte, North Carolina 28273  
USA  
Phone: (704) 587 8888  
Fax: (704) 587 8585

**Membrana GmbH**  
Oehder Strasse 28  
42289 Wuppertal  
Germany  
Phone: +49 6126 2260 - 41  
Fax: +49 202 6099 -750

**JapanOffice**  
Shinjuku Mitsui Building, 27F  
1-1, Nishishinjuku 2-chome  
Shinjuku-ku, Tokyo 163-0427  
Japan  
Phone: 81 3 5324 3361  
Fax: 81 3 5324 3369

**MEMBRANA**  
MEMBRANA  
Underlining Performance  
[www.membrana.com](http://www.membrana.com)  
[www.liqui-cel.com](http://www.liqui-cel.com)

A **POLYPORE** Company