



Filter Reactor

Overview:

Inert borosilicate glass filter reactors have many applications and uses in today's research laboratories. The reactors complement bench scale studies where the product volume runs between 150 mL up to 6 Liters. Because reactors consist of various components it is flexible and easy to use a standard setup or to design one to fit a specific application. As they are primarily glass, the entire reaction is visible at anytime. The filter reactor design allows for complete capture or containment and recovery of the products in the reaction whether they are liquid, solid or both.

Typical Components/Construction:

The reactor body or vessel is made of clear inert borosilicate glass with a flanged top and an internally threaded bottom. The bottom accommodates the PTFE threaded fitting that contains the filter assembly. The filter can be a simple screen or a more sophisticated polyethylene or glass-fritted disc. By using a certain frit size the user can sort out which particulate sizes they want to discard or keep. A bottom outlet valve with tubing fitting permits easy draining and piping away from filter solvents. The body can be jacketed to allow for cooling or heating of the outer jacket or just a plain body. The inert glass heads are easily set-up and attached to the body with the use of a quick style stainless steel clamp. Components such as condensers, traps, liquid addition funnels, or powder addition funnels can be attached to the head to aid in the reaction. Mixing can be accomplished via an overhead stirring motor with a glass, metal or PTFE stir shaft complete with PTFE agitator blades. Removing the glass reactor head simplifies the loading and removal of product and permits thorough cleaning.

Practical Features:

The filtered material can be contained in the reactor and the supernatant can be drained off via the bottom valve through tubing for either capture or contained disposal. The entire reactor can be set up or disassembled in a

matter of minutes for cleaning and running. By using an internally threaded bottom assembly and head assembly, the units can also be used as a pressure reactor and can be used under vacuum or medium pressure. Typical pressure ratings for reactors are higher (35-45 psig) than standard glass vessels (15-18 psig), as the components are made from heavy walled tubing.

The reactors are designed to work with existing lab frames and stands and can easily be put into a hood.

The basic reactor has only a few moving parts so it can be used in hazardous areas.

We list a range of filter reactors in the Pressure Reactors chapter of the Sigma-Aldrich Labware catalog or on our Web site

sigma-aldrich.com/labwarenotes.

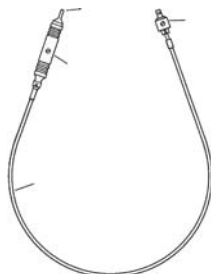


Paula's Pointers

Stirring hazardous liquids can prove to be a challenge when the hood you have is compact. One solution is to use a flexible stirrer shaft, which is designed with a ball bearing motor coupling at one end to connect to any motor with a 8mm diameter shaft. The other end has a detachable hand piece with an 8mm diameter steel adapter for connecting to a FLEX-GRIP stirrer chuck. The stirring motor can then be located outside the hood, giving you more room to work within the hood. The shafts operate to 14,000 rpm in a counter-clockwise direction.

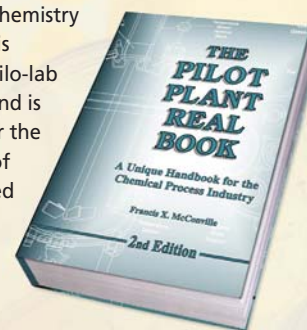
Z258989 Length 91.4 cm (36 in.)

Z258997 Length 152.4 cm (60 in.)



Background Reading

Bridging the gap between chemistry and engineering, this book is designed for process R&D, kilo-lab and pilot plant personnel, and is packed with information for the safe and effective scale-up of new processes. The expanded second edition is illustrated with over 200 distinctive charts, graphs, figures and data tables, and contains countless tips and techniques.



Z730181 Pilot Plant Real Book, 2nd Ed.

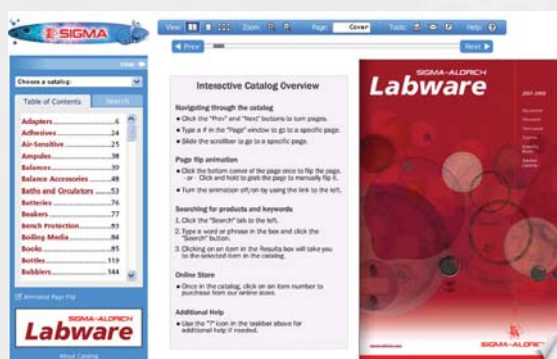
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The NEW Interactive Online Labware Catalog

The Labware catalog is now online. With the look and feel of our print catalog, you have the ability to browse and flip through the pages, jump to a specific chapter, print or email specific pages, or do powerful keyword searches on product names, catalog numbers, brands, and more!

The Interactive features also allow you to view the catalog in multiple ways, zoom in and out for a close-up look at the pictures, click on product numbers to check price and availability, and order from our online store.

Go to sigma-aldrich.com/labwarenotes for more details.



Labware Listens

Buchi Rotary Evaporators

"The glutton for your laboratory work"

- Quote from Buchi Web site

We receive many calls daily from chemists looking for replacement vacuum seals, parts, and glassware for their trusty Buchi rotary evaporators. Identifying and matching up models and parts has never been easy...that is until now! Check out the new Buchi Browser on our Web site, sigma-aldrich.com/labware. This new Web tool organizes Buchi products into logical component chapters that are easy to browse and find what you need. And, at your request, we have extended our range of stock Buchi rotary evaporator models, replacement parts, and glassware. We welcome any Buchi inquiries that you might have. If you have any suggestions, please contact us at labware@sial.com.

Down Time

Number puzzles first appeared in newspapers in the late 19th century in the form of magic squares that relied on arithmetic to solve. Soon after a Sudoku like puzzle appeared. Unlike the Magic Square, Sudoku is a logic based puzzle where the objective is to complete the grid so that each column, row and each 3x3 square contains the digits 1 to 9. The completed puzzles are a form of Latin square with the addition of no repetitions in the 3x3 square.

	4						
3	6	2					
		9		1		8	4
	3				8		9
					4		6
	1	6	9	7			
5	2		6	8			7
6		3				2	
1			4			6	5

Labware Links

For more detailed information on the products featured in this newsletter along with back issues and many useful Labware Web links and protocols, visit sigma-aldrich.com/labwarenotes.

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