

NEW from Asynt:

the CondensSynTM

Air condenser



- Robust
- Easy to clean
- High performance
- Simple and safe to use
- Environmentally friendly
- Short pay-back time
- No risk of flooding

Asynt hotplate stirrer kit, DrySyn Scholar, clamp and support shown for illustration purposes. All are available separately

At Asynt our customers are concerned about both the environmental impact and indeed costs of running a research facility. A condenser is often required for synthetic experiments and therefore an essential tool for the research chemist. Condensers cooled by a circulating fluid such as water are effective and common; however these are often simply used directly with tap water which creates an environmental and cost issue. Ideally such condensers should be attached to a recirculating chiller unit which will not just reduce the environmental impact but also the long term running costs.

Now there is an alternative which used correctly can be used to replace the water condenser in many bench scale reactions; the NEW **CondensSyn**.

We used our 32 years of scientific glass manufacturing knowledge to come up with a design that offers effective condensing by not just increasing surface area but also by having thicker glass than traditional glass condensers.

The CondensSyn is manufactured from borosilicate glass; the design also allows for easy cleaning and has a non-roll feature to stop accidents when left on a bench.

www.asynt.com/product/asynt-condenssyn-air-condensator

CondensSyn - simple, safe, & no risk of flooding



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CondensSyn™

Independent tests were performed by a leading UK University to evaluate the performance for safe use in their research and teaching laboratories. Evaluations were based upon a basic 350mm effective length CondensSyn, a 250ml round bottom flask with 150ml of solvent. CondensSyn is currently available in two lengths, 350mm (as tested) and 450mm for enhanced performance for more demanding applications. You can also choose from B24 and B19 socket sizes. Due to the light weight of CondensSyn two can easily and safely be stacked on top of each other for longer term critical low loss experiments.



Solvent	DCM	Acetone	THF	Ethanol	Acetonitrile	Water*	Toluene
bp [°C]	40	56	66	78	82	100	110
oil bath [°C]	50	71	78	100	100	120	125
difference [°C]	10	15	12	22	18	20	15
time [min]	240	360	300	300	300	240	300
%-loss (total)**	-0.8%	-1.3%	-1.4%	-0.5%	-0.9%	-1.6%	-0.9%
%-loss per hour	-0.2%	-0.2%	-0.3%	-0.1%	-0.2%	-0.4%	-0.2%

In these tests the weighed contents were stirred at the given temperature for the stated time to test the loss of solvent, *i.e.* how much solvent would be lost once the contents have cooled to room temperature.

In a teaching environment the temperature of the heating element is often set higher by students than necessary to ensure a fast heating and vigorous, *i.e.* clearly visible, boiling of the solvent / reaction mixture. Thus, the temperatures were set to higher values than recommended in research labs for *e.g.* stills.

**The higher loss of water measured is due to its high surface tension that resulted in droplets of water sticking to the inside of the entire length of the condenser, rather than all running back to the RBF as was observed for all other solvents. **It is recommended that to prevent further losses a temperature differential is kept below 10C, especially when using solvents below 60 °C boiling point. With Diethyl Ether then this should be no more than 4 °C.*

Save time, money & water!

The average rate of water used in a condenser is 2 litres per minute; this rate was confirmed by a major UK research institution as the average measured use per water condenser in their facility.

The water costs used below are at £1.00 per cubic metre supply and £1.10 per cubic metre waste which is equivalent to 0.21p per litre.

This commercial rate cost is from a water supplier here in the UK, Anglian Water in April 2015. See table below for savings.

	5 hours per day	24 hours per day
Water used per day	600 litres	2880 litres
Cost per day	£1.26 / \$1.93	£6.05 / \$9.27
Cost per month (working days)	£25.20 / \$38.60	£121.00 / \$185.34
Cost per year (working days)	£302.40 / \$463.21	£1452.00 / 2224.13

Order Information:

GB-C-200-A14 200mm with 14/20 socket

GB-C-350-A14 350mm with 14/20 socket

GB-C-350-A24 350mm with 24/40 socket

GB-C-450-A24 450mm with 24/40 socket

“The CondensSyn condensers have been placed into service and have been successfully used for multiple courses (organic; organometallics) over the course of the last semester. We have used the condensers with success to reflux such solvent systems as THF, dichloromethane, toluene, and even diethyl ether. The ether reflux was handled through the used of supplemental cooling by simple opening the hood sash to allow cool from air to sweep across the condenser resulting in minimal losses over a 1 h time period. We plan to purchase additional condensers in the near future.”

David A. Hunt, Ph.D., Professor, Department of Chemistry, The College of New Jersey



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