



PETwave

**Microwave-Assisted
Radiosynthesis**
High Yield Labeling In Minutes

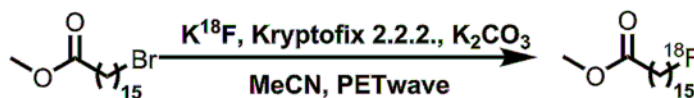


PETwave

for radiolabeling in the hot cell

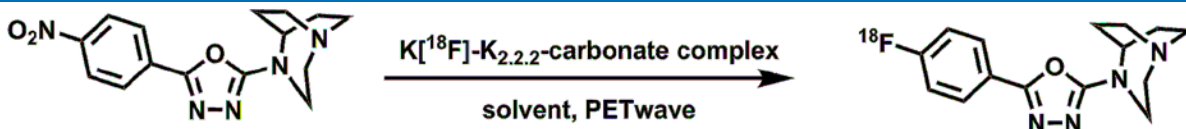
Open up new reaction pathways, dramatically increase radiochemical yields, and improve purity profiles for ^{11}C , ^{18}F , and ^{64}Ga labeling chemistries. The PETwave is the best solution for all hot cell radiolabeling synthesis needs as well as post-reaction deprotection and ^{18}F drying...complete in only 6 minutes! With a compact footprint in the hot cell, the PETwave minimizes required space but maximizes reaction efficiency.

CHEMISTRY



2 minute reaction time!

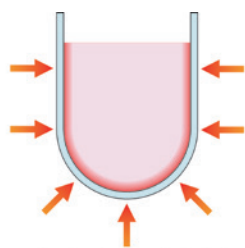
Belanger, A.P.; Pandey, M.K.; DeGrado, T. R. *Nucl. Med. Biol.*, **2011**, 38, 435.



Teodoro, R.; Wenzel, B.; Oh-Nishi, A.; Fischer, S.; Peters, D.; Sahara, T.; Deuther-Conrad, W.; Brust, P. *Appl. Radiat. Isot.*, **2014**, 95C, 76.

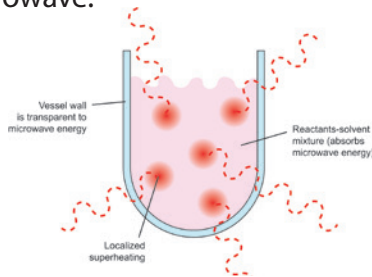
why should I use a Microwave?

Microwave technology has become a common tool for chemical synthesis, both in academia and industry. Compared to conventional means of synthesis, there are many advantages of heating with a microwave.



Convective Heating

Energy is transferred indirectly to the reactants by applying heat to the outside surface of the vessel. This form of heating is very slow and inefficient.



Microwave Heating

Since the vessel wall is virtually transparent to microwaves, energy is directly absorbed by the reaction, providing instantaneous activation or localized superheating of the molecules in solution.

1 faster reaction times

2 greater yields

3 improved purity

4 better reproducibility

5 enhanced reaction control

PETwave vessels



underside of PEEK head

Seal the vessels with the standard screw-on cap with septum or, for hands-free manipulation, use the multi-port head (7 ports) which allows for reagent addition, vacuum drying, gas purging, and sample removal.

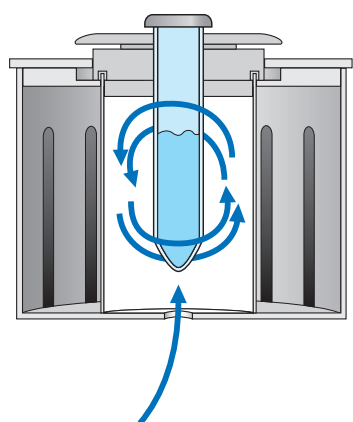


1-, 2-, & 5-mL Reaction Vessels

- Glass conical vessels with uniform wall thickness for accurate temperature measurement and post-reaction cooling
- Operating temperatures from 30-300 °C, but not exceeding the boiling point of the solution
- Working volume range of 50 µL – 2.5 mL

SPECS

Temperature	Pressure	Operating Volume	Microwave Power	Reaction Agitation	Air Cooling	System Control	Dimensions		Electrical
30-300 °C or boiling point of solution 2-6 °C/second	Designed for heating at atmospheric conditions	50 µL -0.5 mL (1-mL conical vial)	0-200 W @ 2450 MHz	Electromagnetic stirring with adjustable speeds (Teflon® coated stir bars are suitable)	≥25 psi (20 L/min flow) user-supplied for post-reaction quenching	Synergy™ software (via Ethernet/IP) or on-board keypad, The system also understands basic LIMS commands	<u>PETwave</u>	<u>Discover</u>	120 VAC (90-140 VAC), 60 Hz, 10A @ 120 VAC or 220/240 VAC (202-250 VAC), 50 Hz, 5A @ 240VAC
Volume-independent infrared (IR) temperature measurement		100 µL -1.0 mL (2-mL conical vial)					4.5"W x 5.0"D x 6.0"H	14.2"W x 16.9"D x 11.2"H	
		250 µL - 2.5 mL (5-mL conical vial)					11.43 cm x 12.7 cm x 15.24 cm	36.1 cm x 42.9 cm x 28.4 cm	
							<i>*Placed inside the hot cell</i>	<i>*Placed within 8 feet of the hot cell</i>	

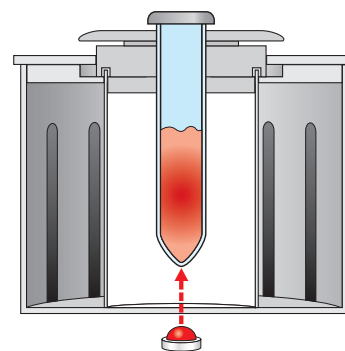


Compressed air cools samples in seconds for subsequent processing steps. Reduce by-product formation and further accelerate the labeling process.

rapid post-reaction quenching



Floor-mounted temperature feedback control



why should I buy from CEM?



Over 50,000 systems sold worldwide



CEM has been an ISO-certified facility since 1994



Serviced & supported by system experts with an average of 15 years of experience



CEM invests 11% of annual revenue into R&D, the result... 11 R&D 100 awards



IQ/OQ/PQ Validation by certified CEM Technicians

“

Our commitment to you doesn't end when your system is shipped: it begins.

”

~Michael J. Collins, President CEM

who do I contact about my PETwave?

CEM Corporation:
PO Box 200
Matthews, NC 28106
United States

800-726-3331
704-821-7015
Fax: 704-821-7894
info@cem.com
www.cem.com

France: CEM μ Wave S.A.S.
Immeuble Ariane
Domaine Technologique de Saclay
4, rue Rene' Razel, 91892 ORSAY Cedex
33 (01) 69 35 57 80 • Fax: 33 (01) 60 19 64 91
info.fr@cem.com

Germany, Austria, Switzerland: CEM GmbH
Carl-Friedrich-Gauss-Str.9, 47475 Kamp-Lintfort
(49) 2842-9644-0 • Fax: (49) 2842-9644-11
info@cem.de

Ireland: CEM Technology (Ireland) Ltd.
Sky Business Centre, 9a Plato Business Park,
Damastown, Dublin 15
+353 (0) 1 885 1752 • Fax: +353 (0) 1 885 1601
info.ireland@cem.com

Italy: CEM S.R.L.
Via Dell' Artigianato, 6/8
24055 Cologno al Serio (Bg)
(39) 35-896224 • Fax: (39) 35-891661
info.srl@cem.com

Japan: CEM Japan K.K.
2-18-10 Takanawa, Minato-ku, Tokyo 108-0074
+81-3-5793-8542 • Fax: +81-3-5793-8543
info@cemjapan.co.jp

United Kingdom: CEM Microwave Technology Ltd.
2 Middle Slade, Buckingham Industrial Estate,
Buckingham MK181WA
(44) 1280-822873 • Fax: (44) 1280-822873
info.uk@cem.com

PATENTS

Worldwide patents issued and pending
©2016 CEM Corporation
PETwave™ is a trademark of CEM Corporation.