

Pd EnCat™

Encapsulated palladium catalysts

Reaxa's Pd EnCat™ catalysts incorporate palladium(II) acetate and activating ligands within a porous polymer bead giving low levels of precious metal contamination in coupling reactions



Cleaner products

Cleaner waste streams

Fast, efficient processes

No plant contamination

Improved processes

Process intensification

typically less than 10 ppm Pd in crude reaction products

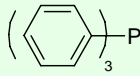
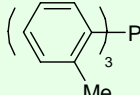
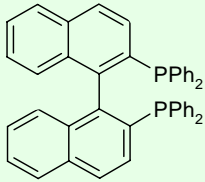
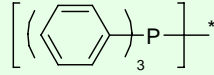
minimal metal losses in Pd EnCat™ processes

EnCat™ beads filter easily

metal and ligands remain trapped within the polymer bead

high activity in many types of coupling reactions

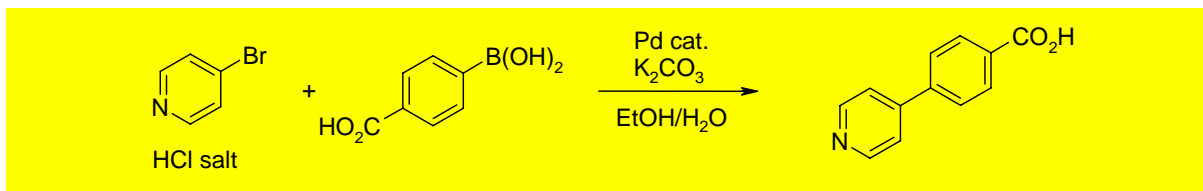
EnCat™ can be used in batch and continuous flow processes

Product	Pd content % w/w	Sigma-Aldrich Catalogue #	Co-encapsulated ligand
Pd EnCat™ 30	4.3	644714	None
Pd EnCat™ 40	4.6	644722	None
Pd EnCat™ TPP30	4.7	644706	
Pd EnCat™ TOTP30	4.7	644692	
Pd EnCat™ BINAP30	4.7	658693	
Pd EnCat™ polyTPP30	4.6	699314	

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Applications

AstraZeneca pilot plant process (courtesy Dr A Wells)



Homogeneous process:
0.4 - 1.0 mol% Pd (PPh₃)₄

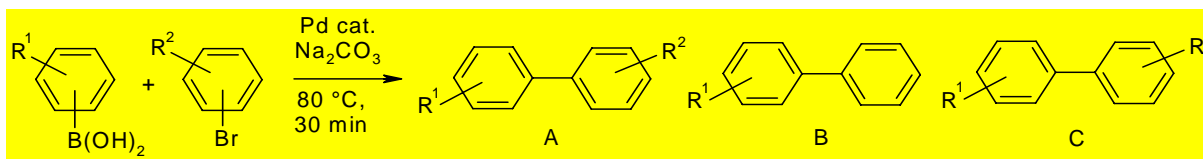
- 80-90% yield
- 600 ppm Pd in crude product and waste stream
- Target <100ppm
- Catalyst recycling not possible



EnCat™ process:
0.75 mol% Pd EnCat™ 40 + 2.5 mol% PPh₃

- 85% yield
- No reaction in the absence of PPh₃
- Reuse >3 times without loss of activity
- 20 ppm Pd in waste stream

Fine chemicals scale-up - Suzuki process to target compound A



Catalyst		% Yield A	% Yield B	% Yield C	Pd (ppm) in crude product
5% Pd/C	2.5 mol%	87	13	0	56
Pd EnCat™ 30	2.5 mol%	97	<1	<1	14
Pd EnCat™ 30	0.25 mol%	>99	<1	<1	9

For more information about EnCat™ catalysts please visit: www.reaxa.com/encat
For EnCat™ samples and test kits please visit: www.reaxa.com/samples
For bulk quotations on EnCat™ products contact: info@reaxa.com

