

New



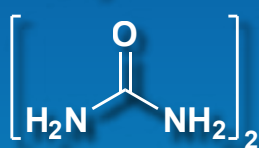
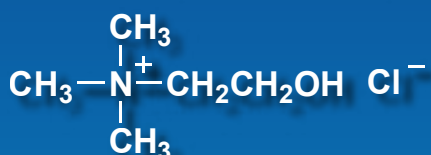
CHEMISTRY



MATERIALS



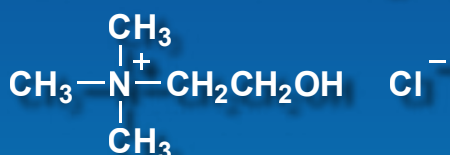
Environmentally-Friendly Deep Eutectic Solvents with Versatile Applications



Choline Chloride
Urea (1:2)
Eutectic Mixture

100g

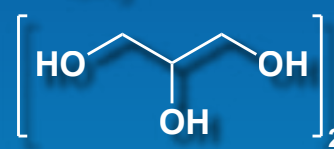
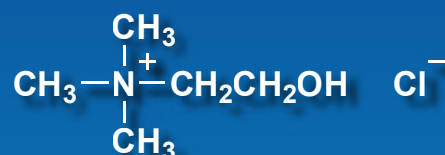
[C4110]



Choline Chloride
Ethylene Glycol (1:2)
Eutectic Mixture

100g

[C4111]



Choline Chloride
Glycerol (1:2)
Eutectic Mixture

100g

[C4112]

Deep eutectic solvents (DESs) are eutectic mixtures composed of a hydrogen-bond donor and a hydrogen-bond acceptor. These systems form extensive hydrogen-bond networks, which enable DESs to become liquid at ambient temperature even when each constituent is a solid, allowing their use as solvents. Owing to their numerous advantageous properties, DESs have been reported as alternative solvents to ionic liquids in a wide range of applications.¹⁾

Advantages

- Strong solvent power and ionic conductivity
- Non-volatile and flame retardant
- Recyclability
- Environmentally friendly, low toxic and fluorine-free
- Low cost and high scalability

Physical Properties ¹⁾

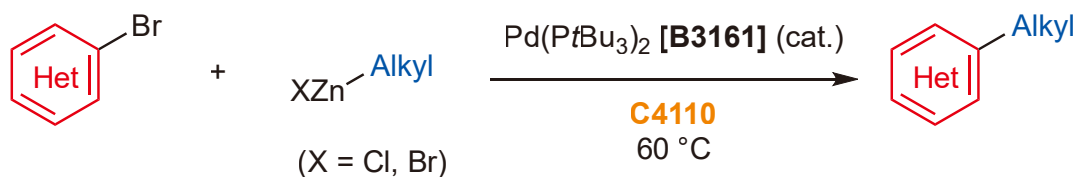
	Melting Point (°C)	Density (g/cm ³)	Viscosity (cP)	Ionic Conductivity (mS/cm)
C4110	12	1.25	632 - 750	0.75
C4111	-66	1.12	36 - 52	7.61
C4112	-40	1.18	259 - 376	1.05

‡ These values are representative ones based on the cited literature and are not guaranteed values.

Environmentally-Friendly Deep Eutectic Solvents with Versatile Applications

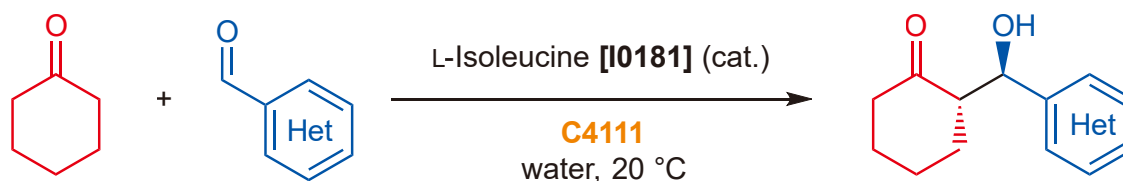
Applications

Negishi Cross-Coupling Reactions in DES ²⁾



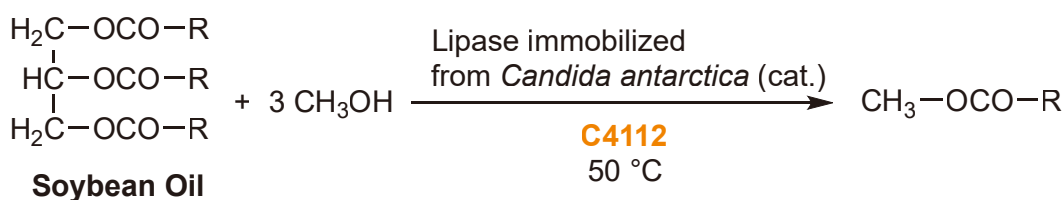
After the reaction, products can be recovered by extraction with CPME. The catalyst remains dissolved in the DES and can therefore be recycled.²⁾

Stereo-Selective Cross-Aldol Reaction with Organocatalyst in DES ³⁾



After the reaction, products can be recovered by extraction with ethyl acetate. The catalyst remains dissolved in the DES and can therefore be recycled.³⁾

Transesterification of Soybean Oil (Triglyceride) Catalyzed by Lipase ⁴⁾



After the reaction, products can be recovered by extraction with THF. The catalyst can be recovered by filtration and reused.⁴⁾

In addition, there have been various applications reported, including CO₂ capture,⁵⁾ extraction of valuable natural products such as caffeine and quercetin,⁶⁾ extraction and recycling of waste metals, and electrochemical processes such as plating and redox flow batteries.⁷⁾

- References**
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 - 2) G. Dilauro *et al.*, *Angew. Chem. Int. Ed.* **2021**, *60*, 10632. <https://doi.org/10.1002/anie.202101571>
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Related Products

Bis(tri-*tert*-butylphosphine)palladium(0) (= Pd(PtBu₃)₂)

250mg / 1g **[B3161]**

L-Isoleucine

25g / 100g / 500g **[I0181]**

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