



(NATURAL) DEEP EUTECTIC SOLVENTS AS MEDIUM FOR IMPROVED INDUSTRIAL CONVERSION – “MIMIC”

Introduction - (Natural) Deep Eutectic Solvents

- ❖ Successors of ionic liquids, but non-toxic, biodegradable, more feasible price & potential for recycling
- ❖ Composed of two or more (solid) natural compounds as eutectic mixture (amides, sugars, alcohols, (amino) acids & miscible with water)
 - ❖ Large choice in NADES compositions allows fine tuning of properties
- ❖ Liquid at low temperature, low vapor pressure, non-volatile, low flammability, high solvation power
 - ❖ Developments possible over the entire polarity range

Project aim

Replacement of classic solvents in conversion processes & use of NADES constituents as reagents and *vice versa*

Expected benefits

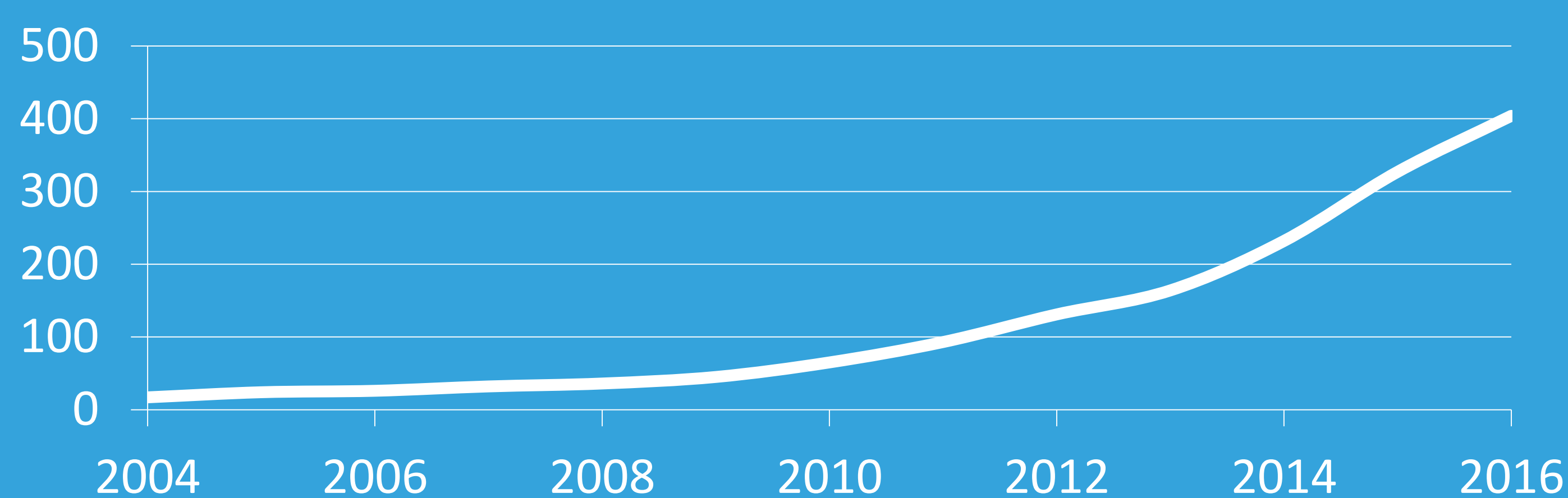
- ❖ Large potential for IP generation & freedom to operate
- ❖ High solvation power
 - ❖ Even for macromolecules
 - ❖ Even at low temperature
- ❖ NADES constituents might serve as catalysts
 - ❖ And are compatible with bio-catalysis

Expected challenges

- ❖ Selection of NADES & performant catalysis
 - ❖ Determination of deep eutectic point
 - ❖ Crystallization & viscosity
 - ❖ Diffusion limitation & heat transfer properties
 - ❖ Process design
- ❖ Recycling of NADES, anti-solvent & recovery of dissolved molecules

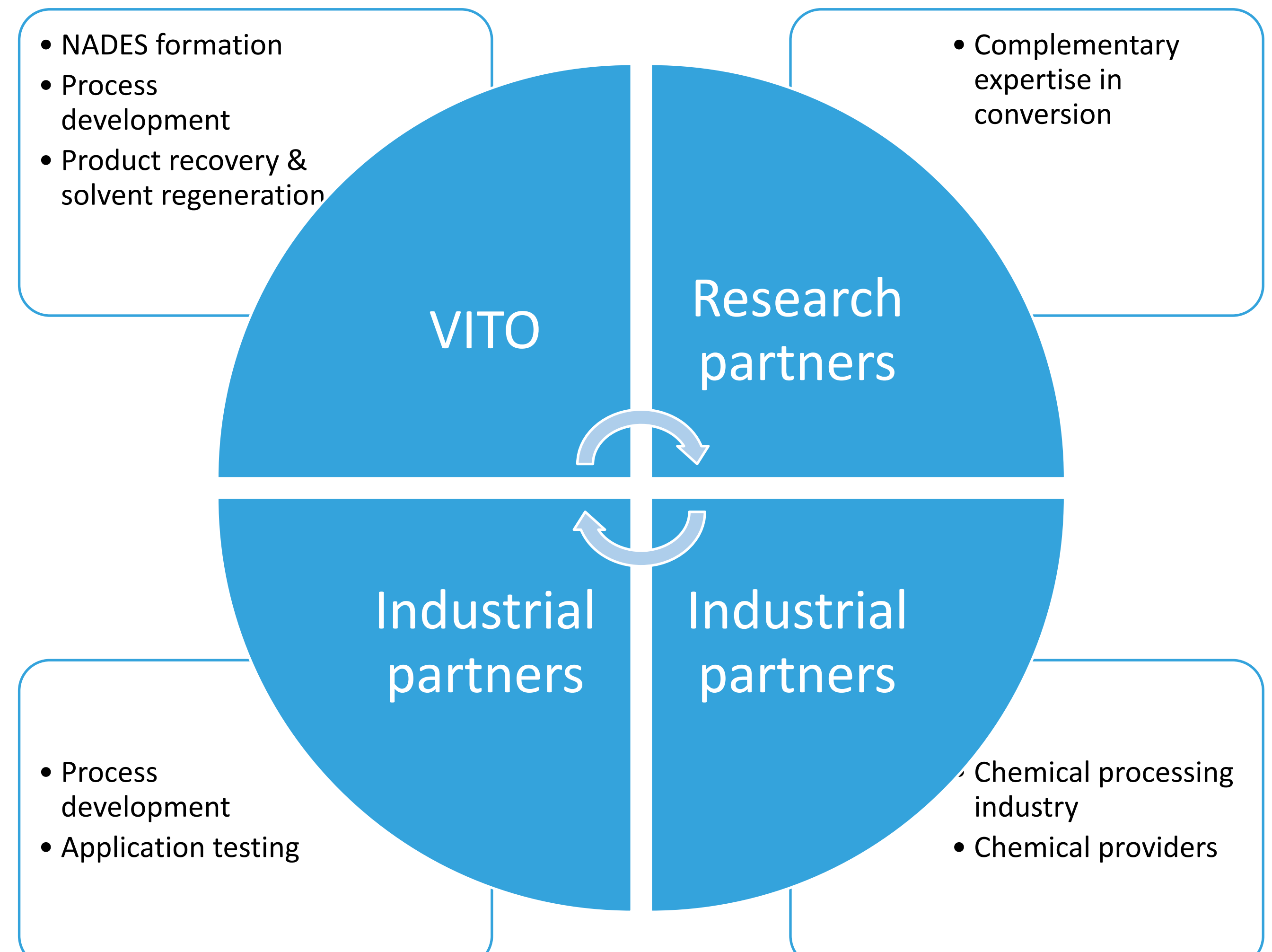
Amount of articles per year on NADES

(mainly in bio refining & metallurgy)



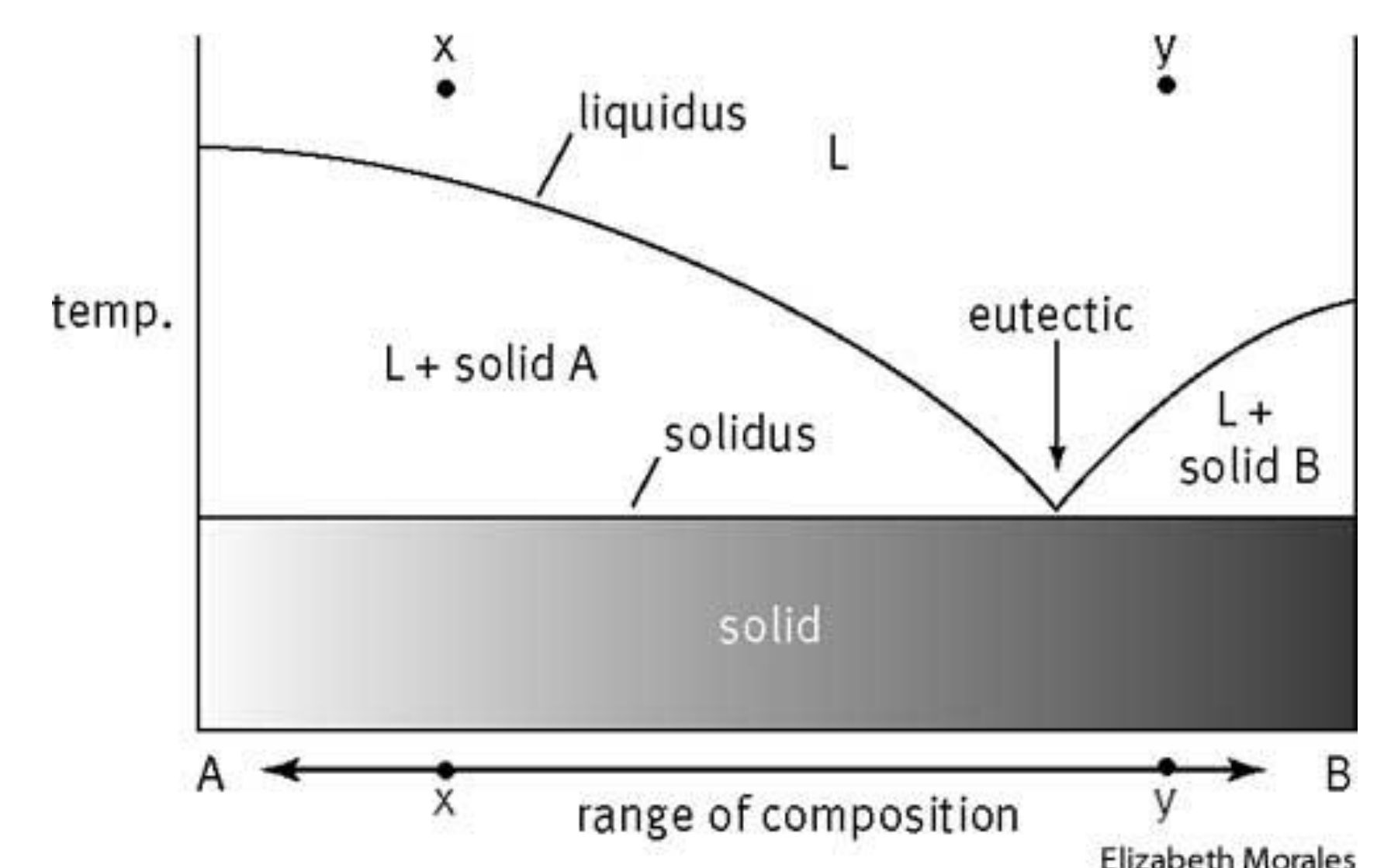
In 2017, at least one article per day

Possible project consortium



Suggested research domain for NADES

Esterification and/or amidation with reagents as NADES constituent in deep eutectic point



For more information

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