**Project Place**

The project will generate a state-of-the-art technical report on global carbon sequestration and capture (CSC) technologies. Key objectives include assessing the techno-economic aspects of promising CSC systems, evaluating recent advances in technologies like direct carbon capture and novel biofuels, employing expert judgment to evaluate credible CSC system models, and providing an impartial analysis of challenges and opportunities in CSC.

The project adopts a multidisciplinary approach, involving a systematic literature review, interdisciplinary analysis, critical evaluation, and technical expertise. It aims to synthesise recent insights, stimulate collaboration, and promote partnerships among technology providers and industries globally. Collaboration is anticipated across various IUPAC Divisions, ensuring a comprehensive review encompassing peer-reviewed articles, research papers, patents, and industry reports.

Critical evaluation includes criteria recommended by the harmonizing carbon sequestration measurement project, considering factors such as cost-effectiveness, scalability, energy efficiency, regulatory compliance and sustainability. The global perspective ensures relevance to an international audience, utilizing IUPAC’s recognition and reach to disseminate findings and foster collaboration among diverse stakeholders and facilitate impactful global collaboration.

For more information and comment, contact Task Group Chair Diane Purchase <D.Purchase@mdx.ac.uk> | https://iupac.org/project/2023-023-1-600

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**Terminology and Symbolism for Mechanochemistry**

Classical solution chemistry seems not to fit properly in the new paradigm of green chemistry, which is crying out for a drastic reduction in the use of solvents, improved atom-economy, energy and cost efficiency. Mechanochemistry fits this role.

Mechanochemistry studies the effects of mechanical energy forces on physicochemical changes and transformations. Rapidly growing, it has applications in various areas of research, including organic synthesis, materials science, nanotechnology, catalysis, and green chemistry. In 2019, IUPAC acknowledged mechanochemistry as one of the top ten technologies for a more sustainable future, recognizing its potential as an environmentally friendly option for developing new processes and materials.

Nevertheless, the expansion of mechanochemistry and the wide range of materials, equipment, methods, and practices involved, have made obvious the lack of standardization and clarity in its terminology and symbolism. The ScienceDirect overview of the subject alone contains over twelve descriptions that provide definitions of mechanochemistry. Curiously, although the IUPAC Compendium of Chemical Terminology (the Gold Book) describes a mechanochemical reaction as one “induced by the direct absorption of mechanical energy,” it leaves undefined just what constitutes “mechanical energy,” and there is only one reference to mechanochemical processes, namely relating to polymers and functional polymeric materials. Detailed terminology pertaining to mechanochemistry and related disciplines is lacking.

With the support of IUPAC, this initiative will establish uniformity in the terminology and classifications employed in mechanochemistry. Additionally, standardized symbolism will be proposed to facilitate communication within the mechanochemical community. The project, which involves multiple stakeholders, will result in recommendations that will contribute to a more organized development of the subject and enhance its visibility and credibility as a distinct and important branch of chemistry.

For more information and comment, contact Task Group Chair Evelina Colacino <evelina.colacino@umontpellier.fr> https://iupac.org/project/2023-034-2-100