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**Bioinspired Synthesis of Monolithic and Layered Aerogels**

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**Abstract**

**Aerogels are the least dense and most porous materials known to man, with potential applications from lightweight superinsulators to smart energy materials. To date their use has been seriously hampered by their synthesis methods, which are laborious and expensive. Taking inspiration from the life cycle of the damselfly, a novel ambient pressure-drying approach is demonstrated in which instead of employing low-surface-tension organic solvents to prevent pore collapse during drying, sodium bicarbonate solution is used to generate pore-supporting carbon dioxide in situ, significantly reducing energy, time, and cost in aerogel production. The generic applicability of this readily scalable new approach is demonstrated through the production of granules, monoliths, and layered solids with a number of precursor materials.**

**Key words**

**aerogels; bioinspired materials; functional materials; insulating materials**