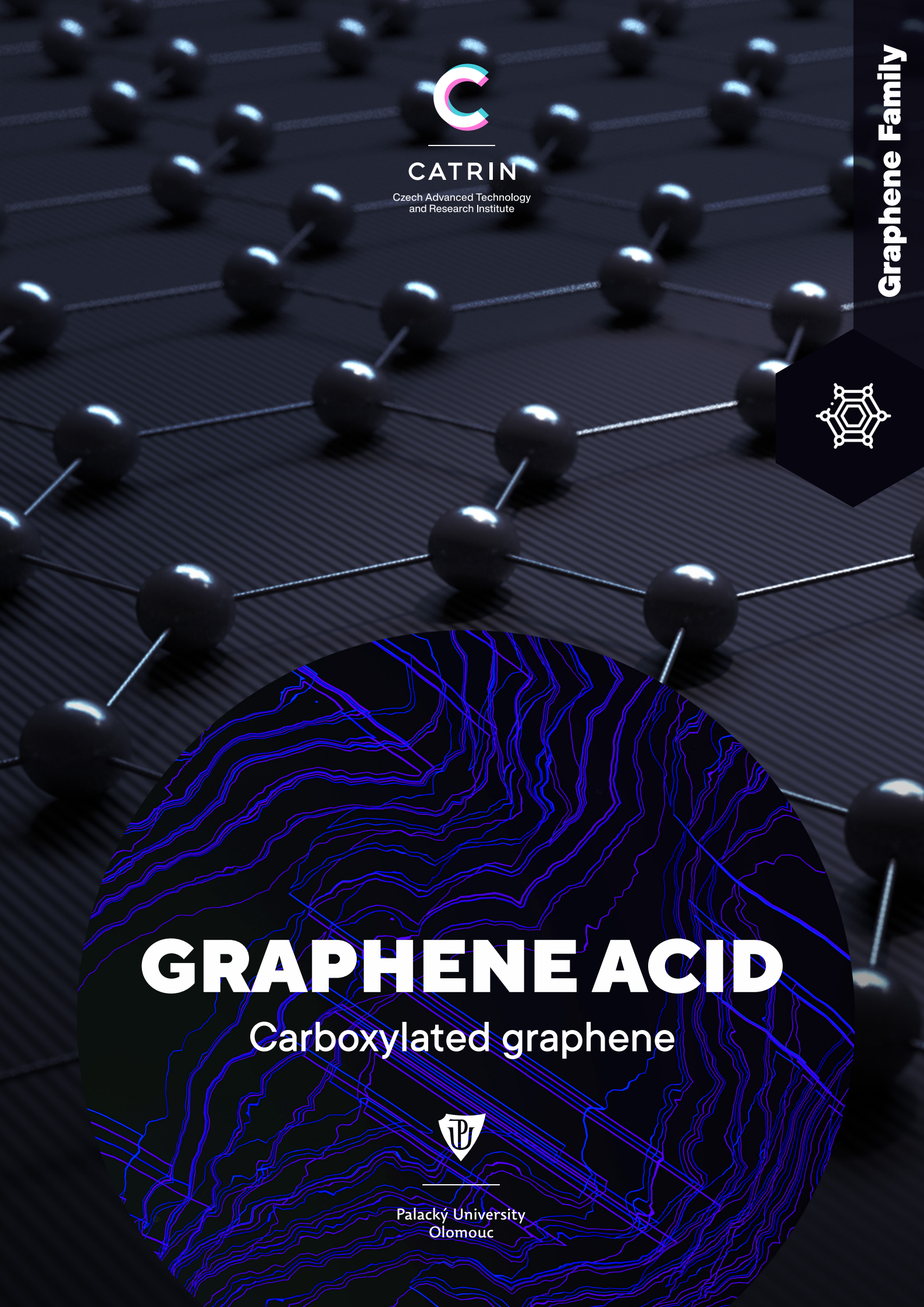
CATRIN

Czech Advanced Technology
and Research Institute

Graphene Family



GRAPHENE ACID

Carboxylated graphene

Palacký University
Olomouc

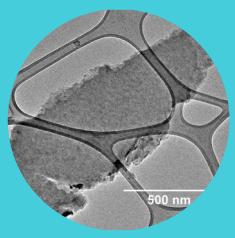
GRAPHENE ACID

CARBOXYLATED GRAPHENE

Graphene acid is a covalent graphene derivative bearing carboxyl groups on both sides of the graphene surface. It is well dispersible in water, making stable colloidal dispersions at low and high concentrations. Graphene acid behaves as a 2D carboxylic acid with pK_a of 5.2, precipitating at pH below 5.2. The nanomaterial is conductive and well biocompatible.

QUICK FACTS

Form	Water Dispersion of Few Layered Nanoflakes
Lateral size	~500 nm
Purity	Approx. atomic content in %: C 80, O 15, N 4, F 1 Fe <20 µg/g; Cu <10 µg/g; Ni <10 µg/g
pK_a	5.2
Zeta-Potential	-32 ± 5 mV (pH = 5.5)
Temperature stability	Up to 240 °C (inert atmosphere)
Sheet resistance	6 800 Ω•sq^{-1}
Dispersibility	water and polar solvents



KEY FEATURES

- Water dispersibility
- Conductivity
- Graphene surface decorated with -COOH groups
- High biocompatibility

APPLICATIONS

- Conductive support for enzyme (electro)catalysis (ACS Appl. Mater. Interfaces, 12, 250-259, 2020)
- Carbocatalysis (metal free catalysis) (Chem. Sci., 10, 9438-9445, 2019)
- Arene CH insertion (Carbon, 143, 318-328, 2019)
- Electrochemical sensing (ChemElectroChem, 6, 229-234, 2019)
- Hydrogen peroxide electrochemical sensing (ACS Omega, 4, 19944-19952, 2019)
- Metal ions sorption (ACS Nano, 15, 3349–3358, 2021)
- Gas sensing (J. Mater. Chem. A, 9, 17434-17441, 2021)
- Genosensing (Biosens. Bioelectron., 195, 113628, 2022)
- Lithium-ion batteries (Adv. Energy Mat., 12, 2103010, 2022)

SALES INFO

Package available

Dispersion – 1 ml, 5 ml, 10 ml, 50 ml

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