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Structural diversity of carbonates containing CO4 groups

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We demonstrated the synthesis of carbonates containing [CO4]-groups at moderately high pressures (20-30 GPa) by reacting carbonates with oxides or CO2. These carbonates have different chemical compositions than the well-known 'conventional' carbonates (MeCO3) and are enriched either with the metal oxide or with CO2. Here we will give an overview of carbonates containing [CO4]-groups and will present crystal-chemical aspects of [CO4]-groups in comparison to [SiO4] and other [MO4] complex anions.

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