

Polydimethylsilane (PDMS)

(Raw material for polycarbosilane, a precursor of silicon carbide)

Polydimethylsilane (PDMS) is a pre-ceramic polymer precursor developed by Indian Space Research Organisation at its Vikram Sarabhai Space Centre. PDMS finds use in the synthesis of polycarbosilane (PCS) – a well-known polymeric precursor for silicon carbide (SiC). PCS is prepared from PDMS by heating PDMS in an autoclave, or at normal pressure with a catalyst. PCS is a ceramic precursor useful in realizing C/SiC, C/C-SiC and SiC/SiC based thermo-structural components for re-usable launch vehicles, C/SiC turbine blades, and SiC fibers.

Salient Features

- Fine free flowing powder at room temperature.
- It can be stored in sealed polyethylene bags at room temperature, away from direct sunlight, and has long shelf life.
- PDMS is insoluble in water and other organic solvents such as Acetone, Cyclohexane, Ethyl Acetate, Toluene, Xylene.

Properties	Range
Appearance	White powder
Moisture content (by KF)	<1%
Silicon content (wt%)	42 – 48
Carbon content (wt%)	34 – 41
Hydrogen content (wt%)	9 – 12
Oxygen content (wt%)	<5