

SOMAN, C<sub>7</sub>H<sub>16</sub>FO<sub>2</sub>P  
CAS No. 96-64-01  
HS No. 29.31.00  
Merck 8668

**Synonyms:** Pinacolyl Methylphosphonofluoridate, GD.

**Physical properties:** MW: 182; bp: 198°C; colourless, odorless liquid that is sparingly soluble in water.

**Synthesis:** The reaction of pinacolyl alcohol with methylphosphonyl difluoride.

**Toxicology:** rapidly absorbed through respiratory tract, casualty dosage (unmasked) 35 mg-min/m<sup>3</sup> and the lethal dosage 50 mg-min/m<sup>3</sup>. It is an oxime resistant nerve agent and acetylcholinesterase inhibited by Soman cannot be reactivated.

**Key precursors:** methylphosphonyl difluoride, (CAS No. 676-99-3), and methylphosphonyl dichloride, (CAS. No. 676-97-1).

**Precursors:** Dimethyl methylphosphonate, (CAS No. 765-79-6)

**Other chemicals:** Trimethyl phosphite, (CAS No. 121-450-9); and Phosphorus trichloride, (CAS NO. 7719-12-2).

Other phosphonofluoridates have been considered as nerve agents, these only differ in the alcohol reacted with methylphosphonyl difluoride, an example would be GF where the alcohol employed is cyclohexanol.