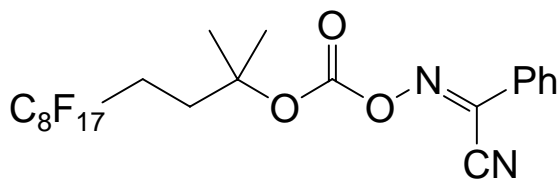
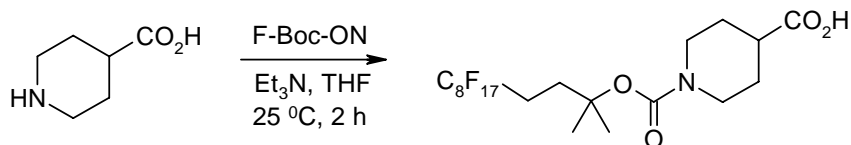


**F017003**

 2-[2-(1*H*,1*H*,2*H*,2*H*-Perfluorodecyl)  
isopropoxycarbonyloxyimino-2-phenylacetonitrile

Chemical Formula:	C <sub>22</sub> H <sub>15</sub> F <sub>17</sub> N <sub>2</sub> O <sub>3</sub>
Formula Weight:	678.34
CAS Number:	356056-15-0
Appearance:	White, free-flowing solid
Soluble in:	Dichloromethane, chloroform, THF, ether, toluene, and many other organic solvents
Stability:	Stable in air

**Why Fluorous?** 2-(tert-Butoxycarbonyloxyimino)-2-phenylacetonitrile (Boc-ON) has been widely used for protection of amino groups in peptide synthesis and multistep organic synthesis of small molecules.<sup>1,2</sup> F17-Boc-ON is a fluorinated equivalent that has comparable utility to the normal Boc-ON. Protection of the amino group with F-Boc-ON and deprotection are achieved under standard reaction conditions, with the advantage that products containing the F-Boc group can easily be separated from organic reagents, reactants or products by performing a quick fluorinated solid phase extraction (F-SPE) over FluoroFlash<sup>®</sup> silica gel.<sup>3</sup>

**TYPICAL PROTECTION:<sup>1</sup>**

**Materials Needed**
**Quantity**

Amine	29 mg, 0.12 mmol
F17-Boc-ON	88 mg, 0.13 mmol
Et <sub>3</sub> N	20 mg, 0.2 mmol
THF (dry)	10 mL
FluoroFlash <sup>®</sup> SPE cartridge	1 x 5 g
MeOH-H <sub>2</sub> O, 80:20	20 mL
MeOH	20 mL

**Stepwise Procedure:**

- 1) Mix F-Boc-ON, amine, and Et<sub>3</sub>N in THF;
- 2) Stir 2 h at room temperature;
- 3) Concentrate reaction mixture to < 0.3 mL;
- 4) Charge to F-SPE cartridge;
- 5) Elute cartridge with MeOH-H<sub>2</sub>O ;
- 6) Elute cartridge with MeOH and concentrate eluent to give 93 mg, 96% yield of product.

**TYPICAL DEPROTECTION:<sup>1</sup>**
**Materials Needed**
**Quantity**

F-Boc Protected Amine	0.05 mmol
TFA:CH <sub>2</sub> Cl <sub>2</sub> , 1:1	1.0 mL
FluoroFlash <sup>®</sup> SPE cartridge	1 x 2 g
MeOH-H <sub>2</sub> O, 80:20	8 mL

**Stepwise Procedure:**

- 1) Add TFA:CH<sub>2</sub>Cl<sub>2</sub> to F-Boc protected amine;
- 2) Stir 2.5 h at room temperature;
- 3) Concentrate reaction mixture to < 0.15 mL;
- 4) Charge to F-SPE cartridge;
- 5) Elute cartridge with MeOH-H<sub>2</sub>O and concentrate eluent to give the deprotected product. Typical yields are 90-100%.

## Insider Tips:

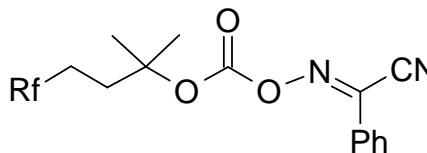
- The F-Boc protected amine is in the second SPE fraction of MeOH, while deprotected product is in the first fraction of MeOH-H<sub>2</sub>O.
- Loading solvents and volumes affect the reliability of the F-SPE in predictable ways. Be sure to read the application note on "Fluorous Solid Phase Extractions" if you are new to this technique.<sup>4</sup>
- The spent F-SPE cartridge can be regenerated by washing with THF, then reconditioning according to the above application note.
- Other methods such as heating the F-Boc amine with HCl:MeOH (1:3) for 16 h at 65 °C can be used for deprotection.

## ADDITIONAL OPTIONS:

F17-Boc has appropriate fluorine content for tagging of diverse organic molecules in combination with F-SPE. The other F-Boc-ON homologs are useful for fluorous mixture synthesis (FMS).<sup>5</sup>

Additional F-BOC-ON Homologs Available:

Rf	Catalog No.
C <sub>3</sub> F <sub>7</sub>	F007003
C <sub>4</sub> F <sub>9</sub>	F009003
C <sub>6</sub> F <sub>13</sub>	F013003
C <sub>10</sub> F <sub>21</sub>	F021003



## REFERENCES:

- 1) Luo, Z. Y.; Williams, J.; Read, R. W.; Curran, D.P. *J. Org Chem.* **2001**, *66*, 4261.
- 2) Zhang, W. 'Fluorous Protecting Groups and Tags' in *Handbook of Fluorous Chemistry*, Gladysz, J. A.; Curran, D. P.; Horvath, I. T. Eds. Wiley-VCH, 2004, pp 222-236.
- 3) Curran, D. P. *Synlett* **2001**, 1488. Curran, D. P. 'Separations with Fluorous Silica Gel and Related Materials', in *Handbook of Fluorous Chemistry*; Wiley-VCH: Weinheim, 2004; pp 101-127.
- 4) FTI Application Note "Fluorous Solid Phase Extraction"
- 5) Zhang, W. *Arkivoc* **2004** (i), 101-109.

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