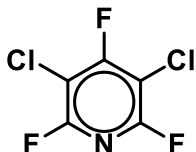
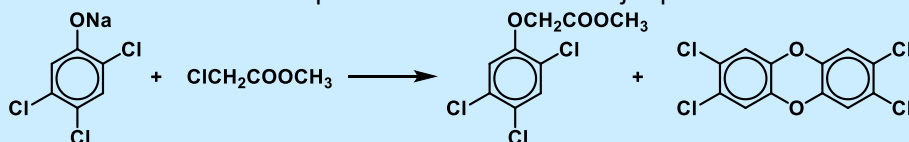


3,5-Dichloro-2,4,6-trifluoropyridine(abb. ; Cl₂F₃P)



Purity	97%
CAS Number	1737-93-5
Molecular Formula	C ₅ Cl ₂ F ₃ N
Molecular Weight	201.96

1. Herbicides that inhibit plant growth, such as chlorinated phenoxyacetic acids, are widely known, but the environmental impact of dioxins contained as impurities has become a major problem.



Fluorinated phenoxyacetic acid was also developed as a countermeasure, and is widely used in Europe as a herbicide for perennial plants under the common name fluroxypyr; 1-methylheptyl(4-amino-3,5-dichloro-6-fluoro-2-pyridinoxy) acetate. The process was improved in the fourth and final step by adopting a reactive distillation device and changing the transesterification catalyst from PTS, H₂SO₄ to Ti(O-tert-Bu)₄. A significant improvement in yield to 93% was observed.

Application

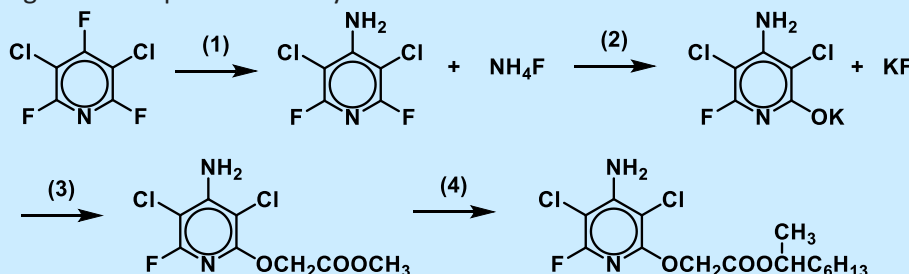


Table-1 fluroxypyr 4th step reaction conditions

No.	Pressure	2-OI/Meratio	Catalyst	Condition	Yields
Ref	High P	4.7	H ₂ SO ₄	-	56%
1	Nornmal P	2	Ti(O-tert-Bu) ₄	180°C*2hr	88%
2	Nornmal P	3	Ti(O-tert-Bu) ₄	180°C*2hr	93%
3	Nornmal P	4	Ti(O-tert-Bu) ₄	180°C*2hr	92%

(1) 35% NH₄OH, 28% NH₄OH, 45-60°C*2.4hr, (2) 52%KOH, 100C*2.5hr,

(3) ClCH₂COOCH₃, NMP, 40-45°C*2hr,

(4) H₂O, 2-Octanol; abb. 2-OI, Ti(O-tert-Bu)₄, 180°C*1hr

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Properties:

Appearance	Solid
Boiling point, °C	155-156
Melting point, °C	30