Supporting Information

Diphenyl Carbonate: A Highly Reactive and Green Carbonyl Source for the Synthesis of Cyclic Carbonates

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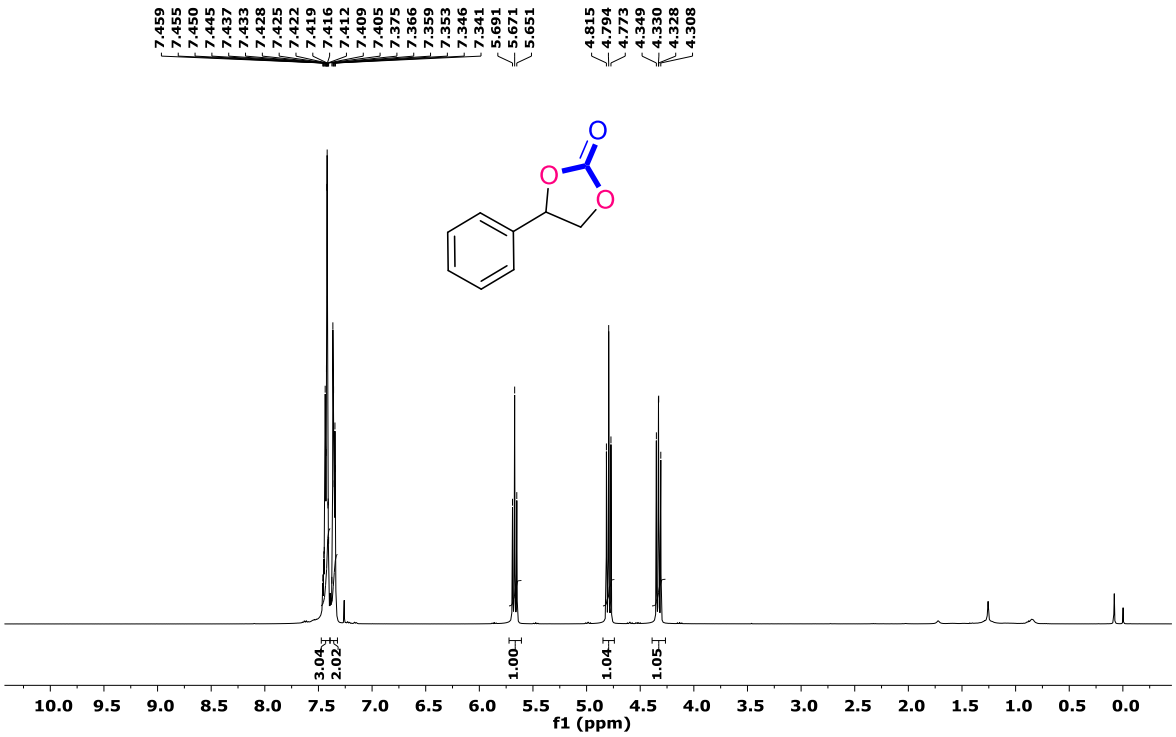
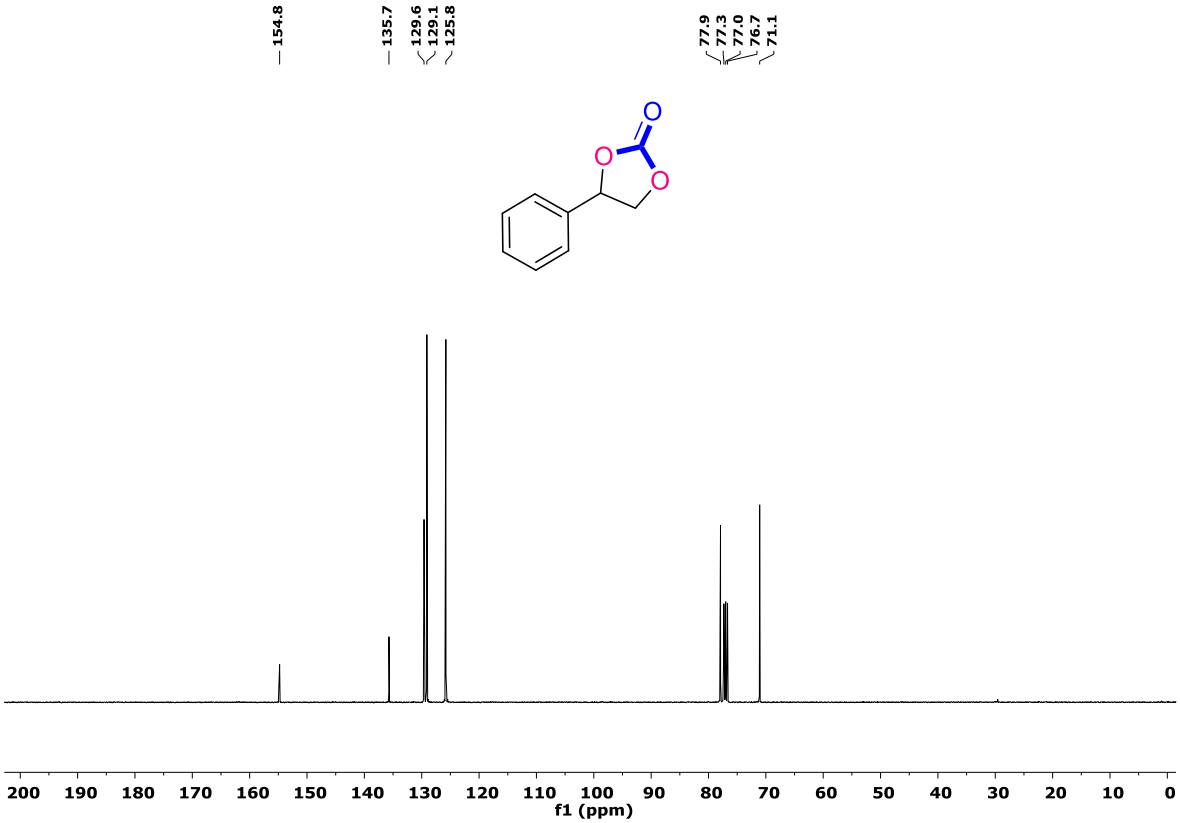
Contents

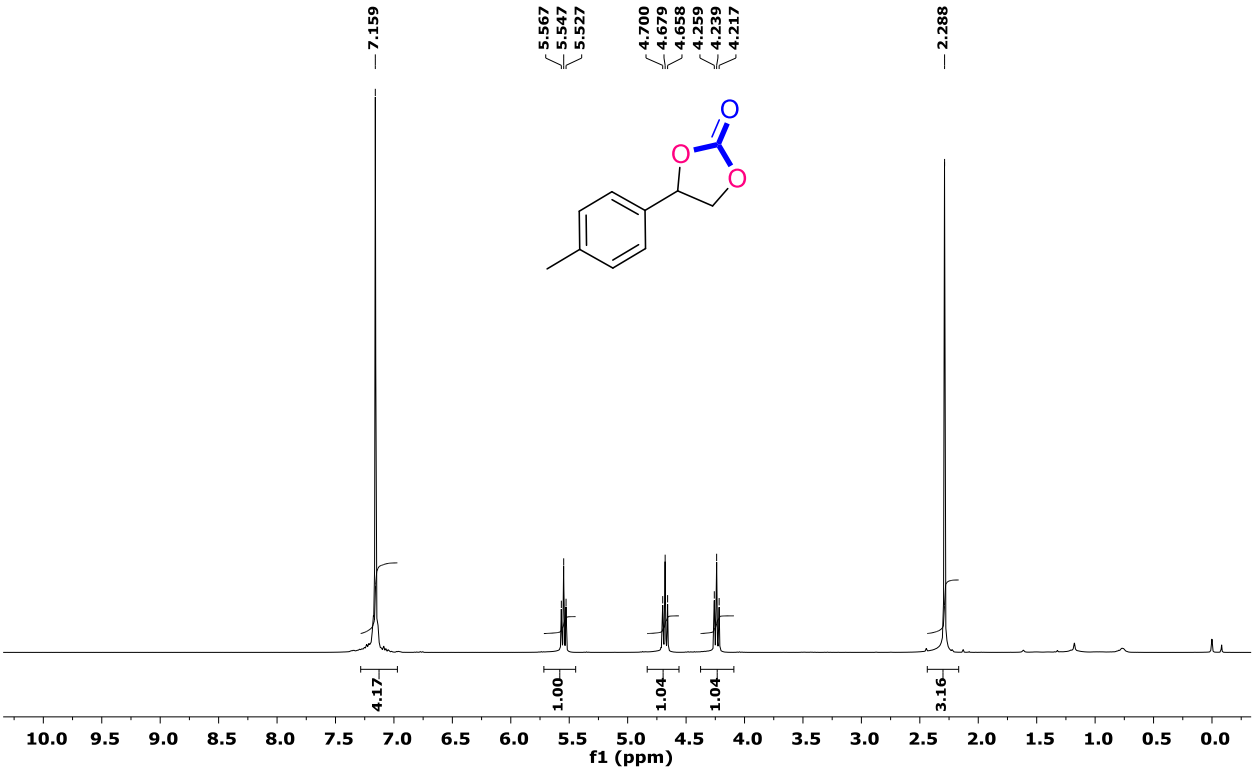
1. Copies of NMR Spectra of Cyclic Carbonates

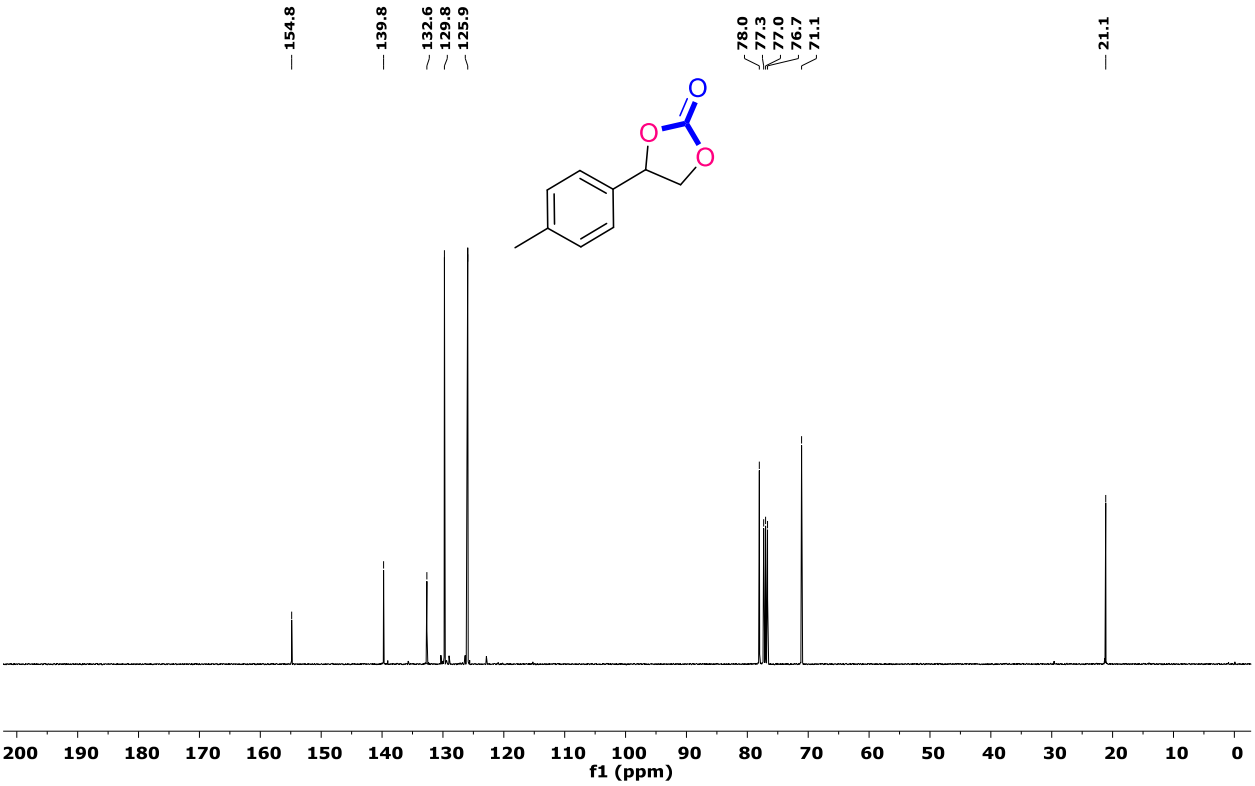
4-Phenyl-1,3-dioxolan-2-one (3a)



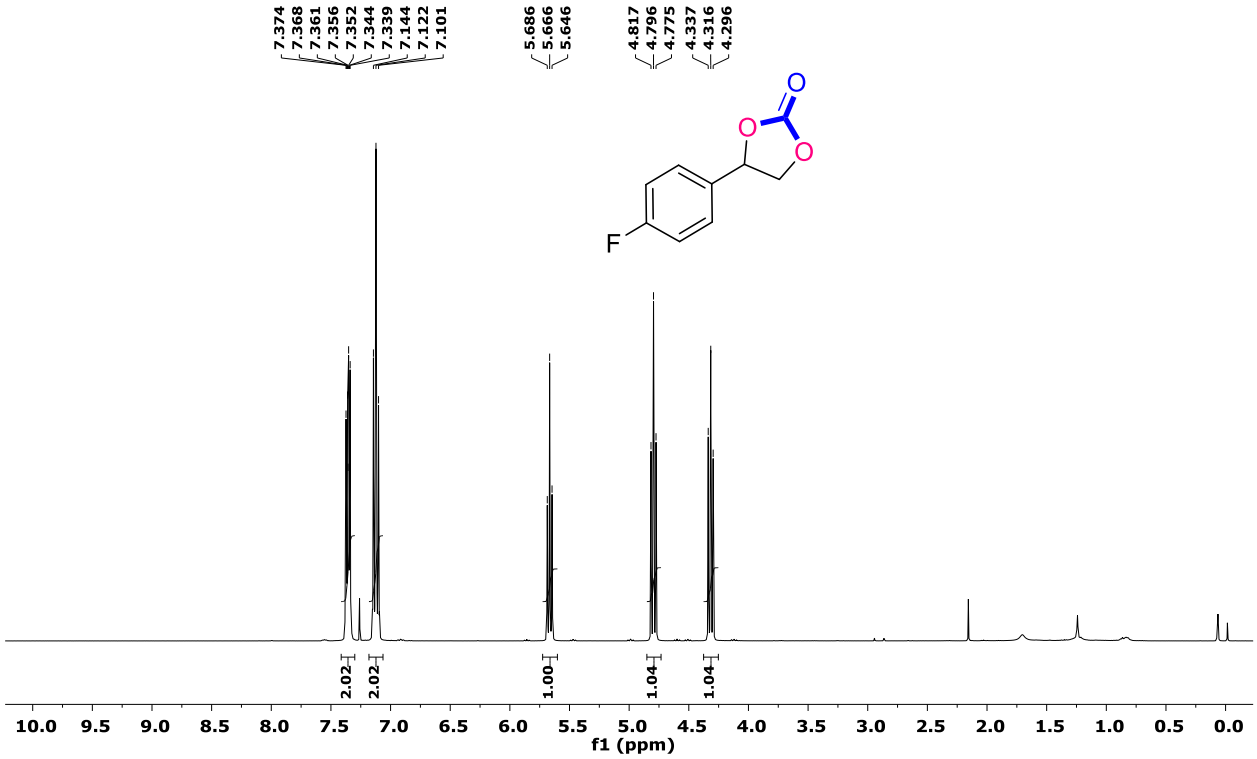


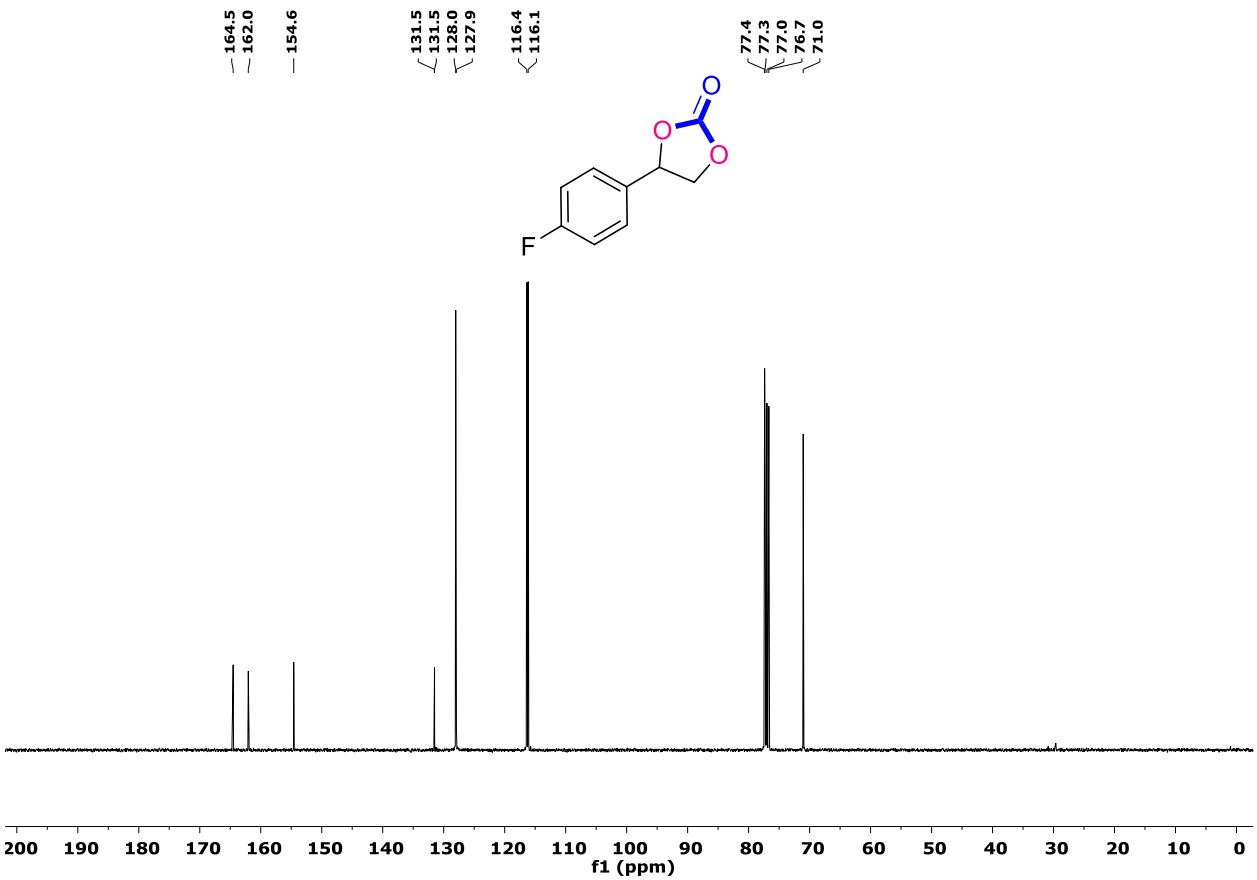
4-(*p*-Tolyl)-1,3-dioxolan-2-one (3b)

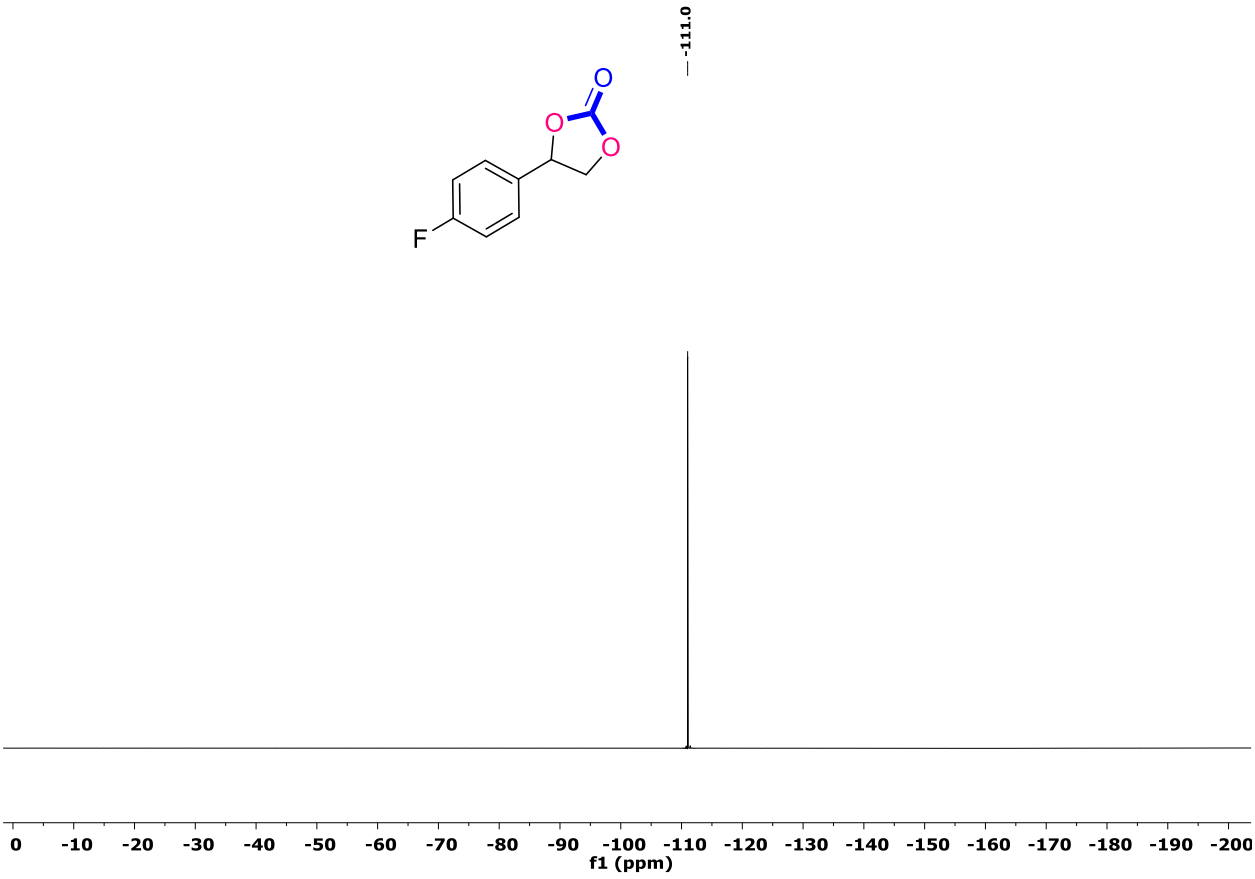




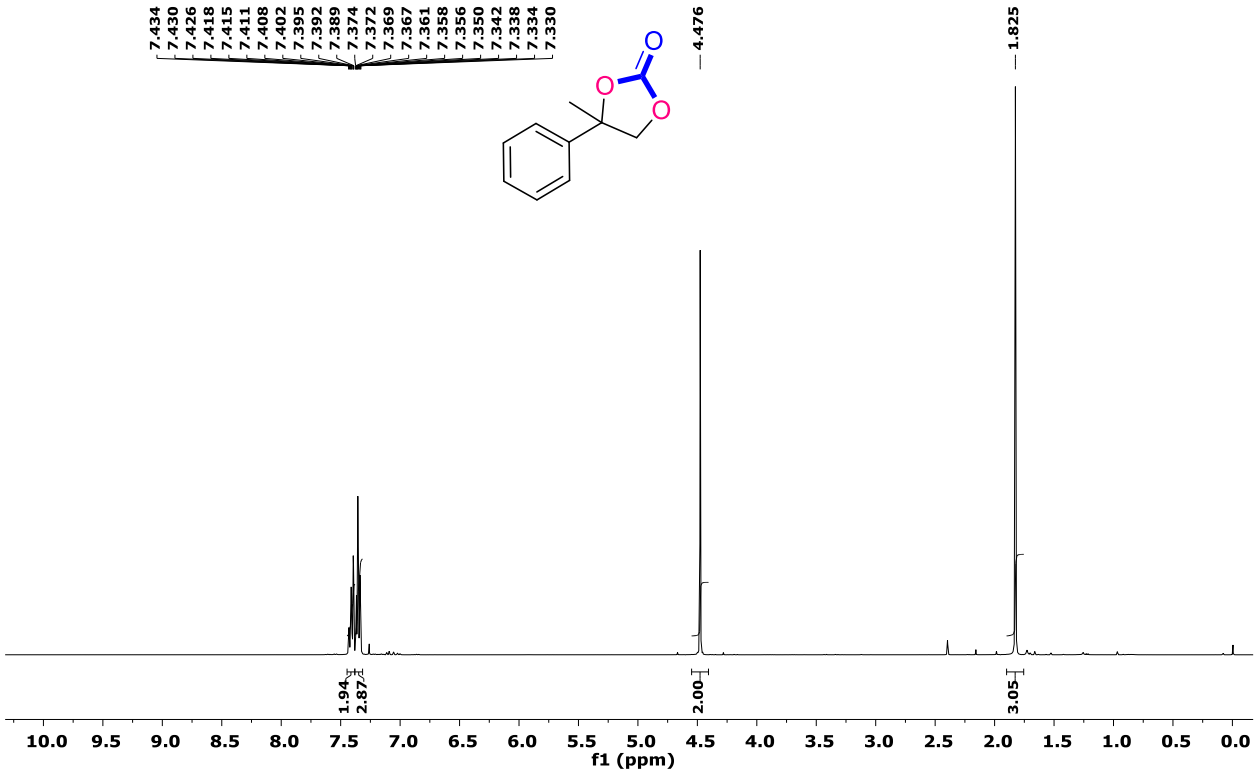
4-(4-Fluorophenyl)-1,3-dioxolan-2-one (3c)

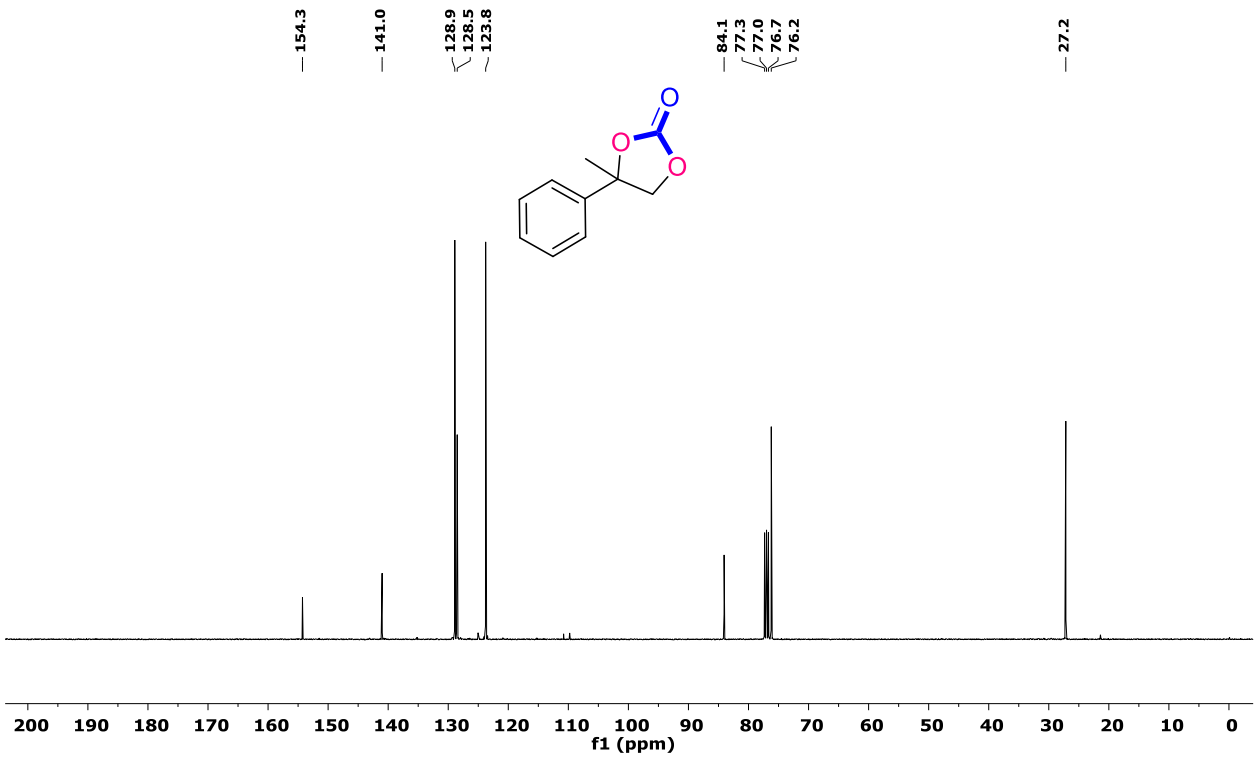




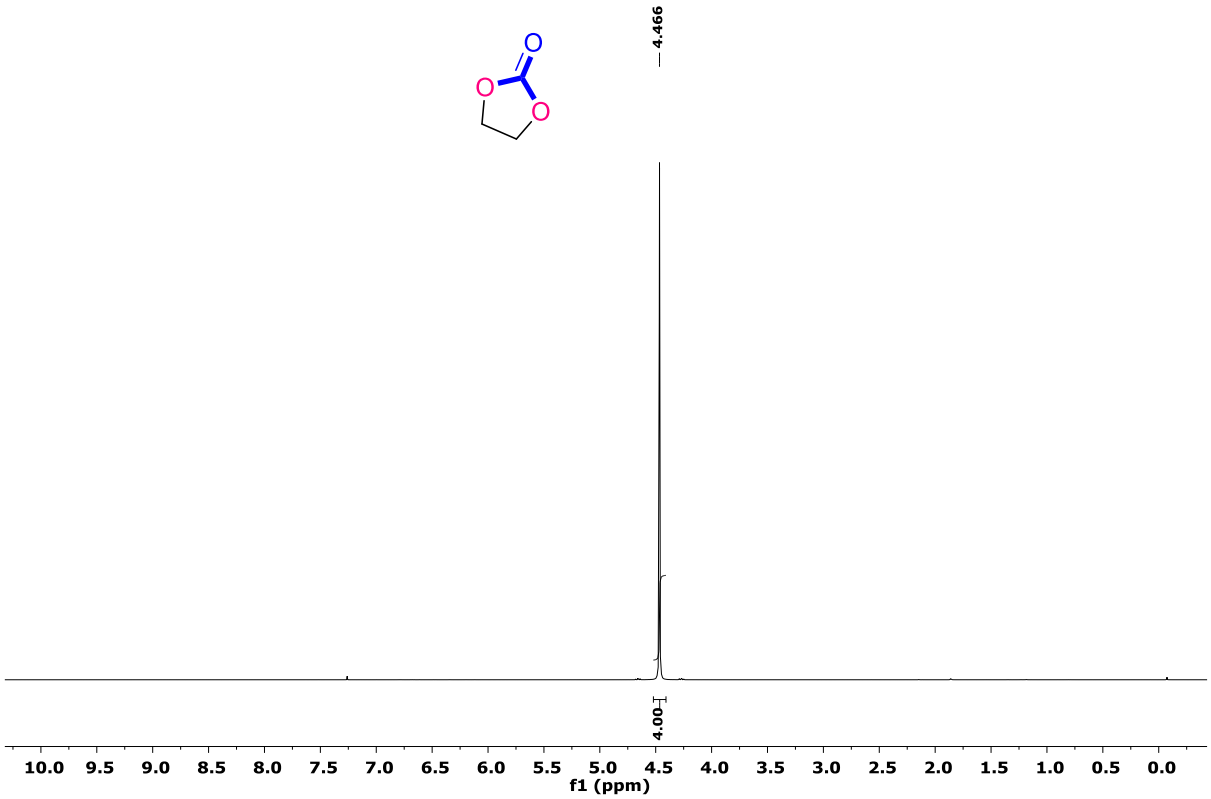

-111.0
O
O
O
F
0
-10
-20
-30
-40
-50
-60
-70
-80
-90
-100
-110
-120
-130
-140
-150
-160
-170
-180
-190
-200
f1 (ppm)

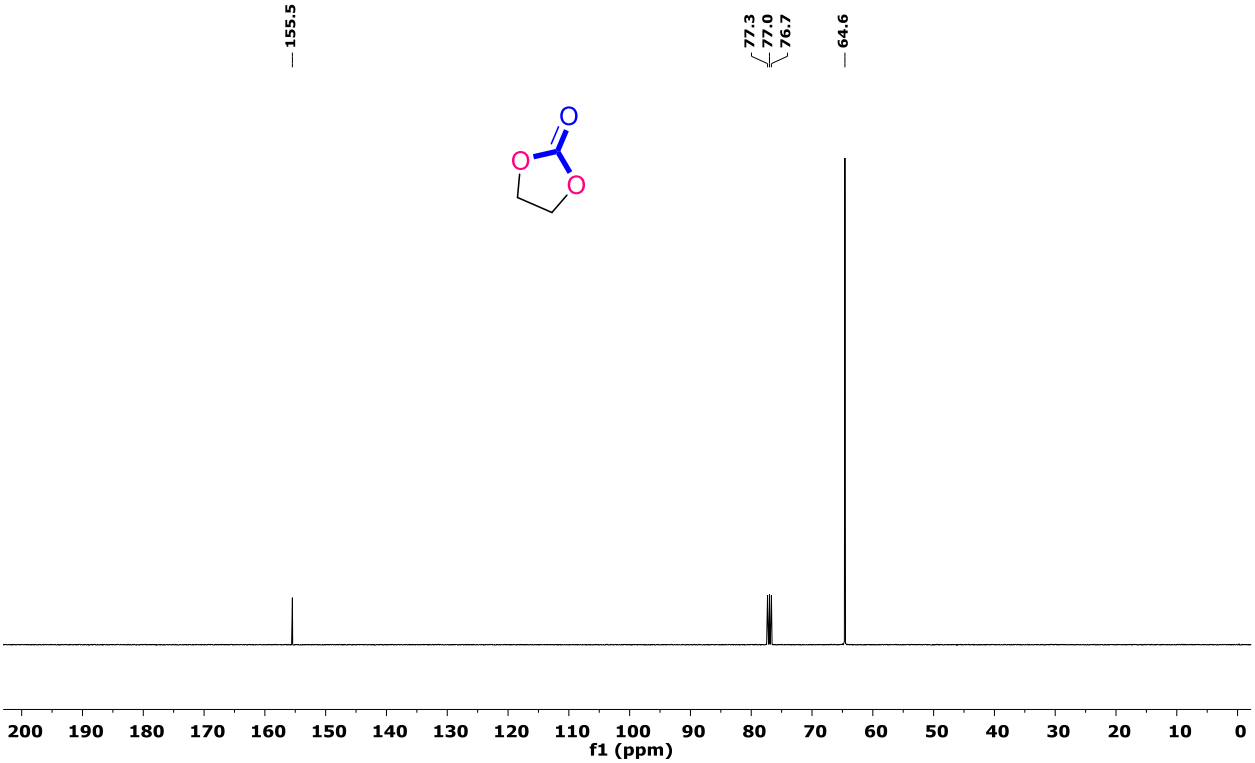
4-Methyl-4-phenyl-1,3-dioxolan-2-one (3d)



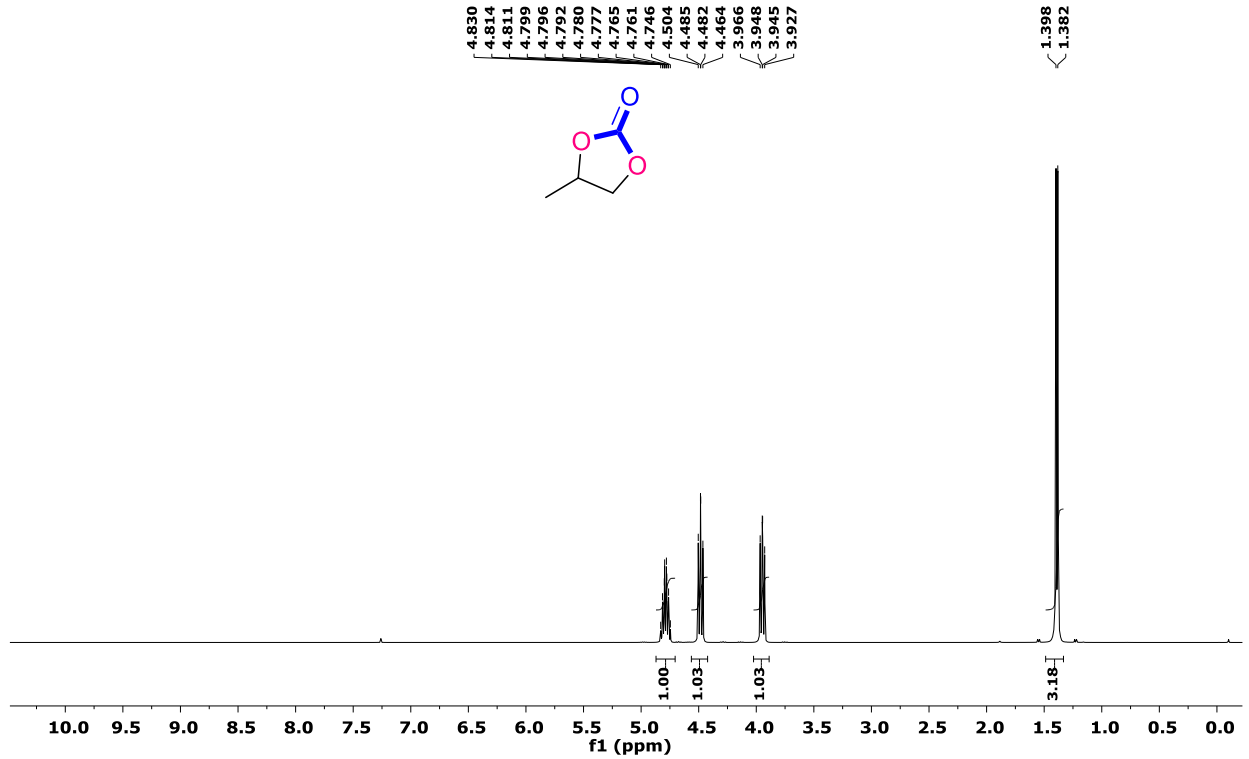


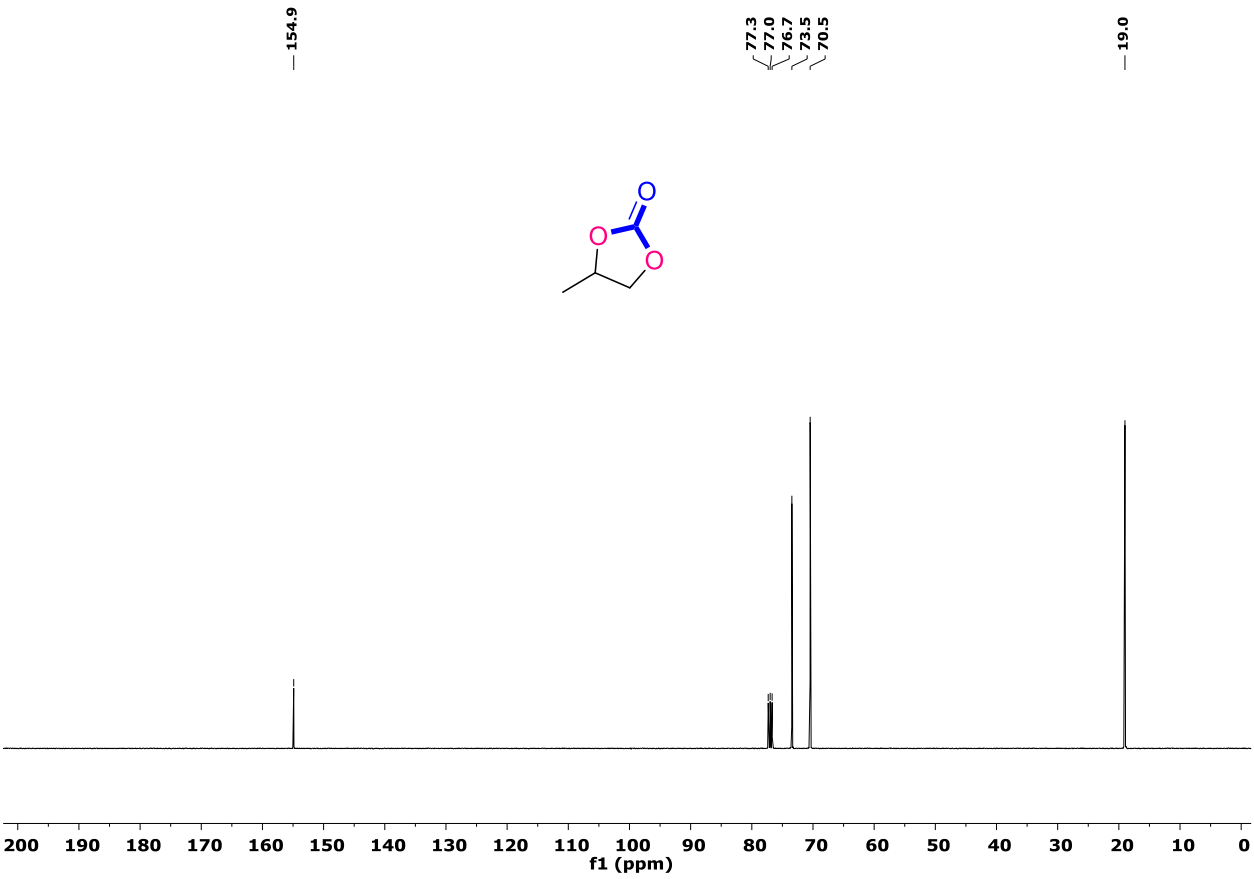
1,3-Dioxolan-2-one (3e)





4-Methyl-1,3-dioxolan-2-one (3f)





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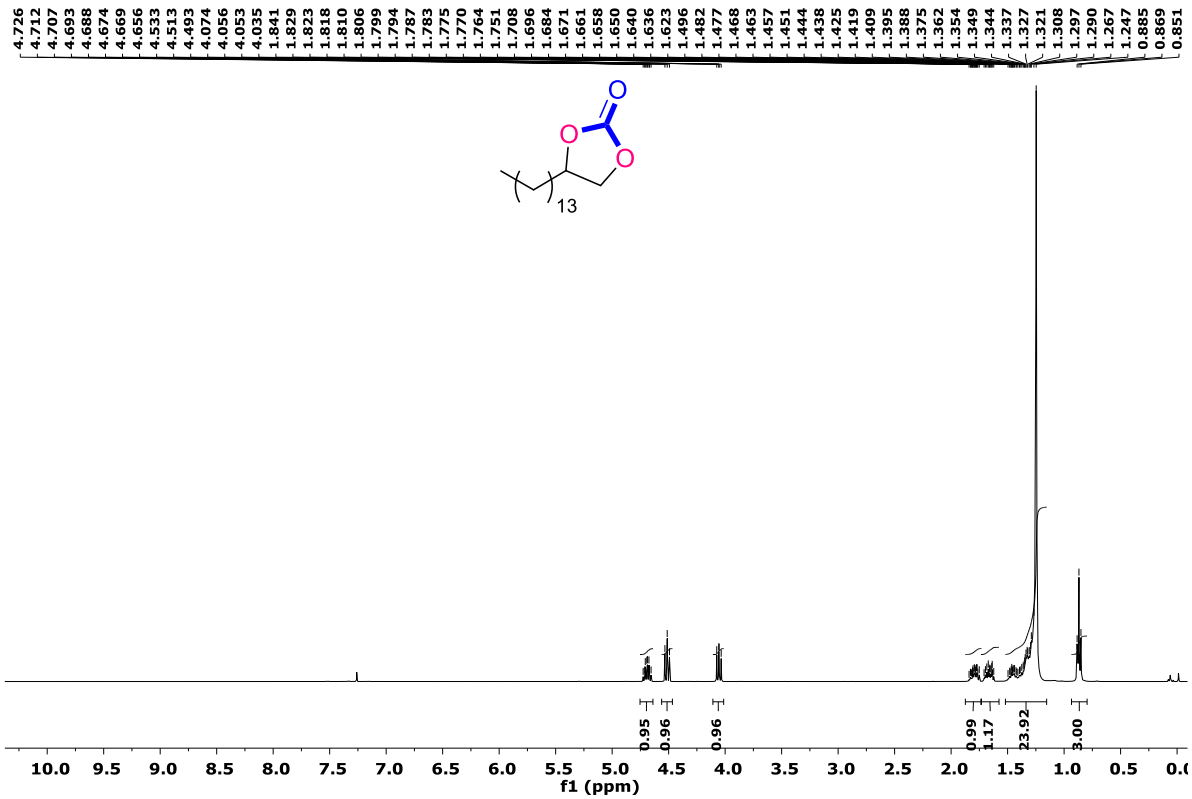
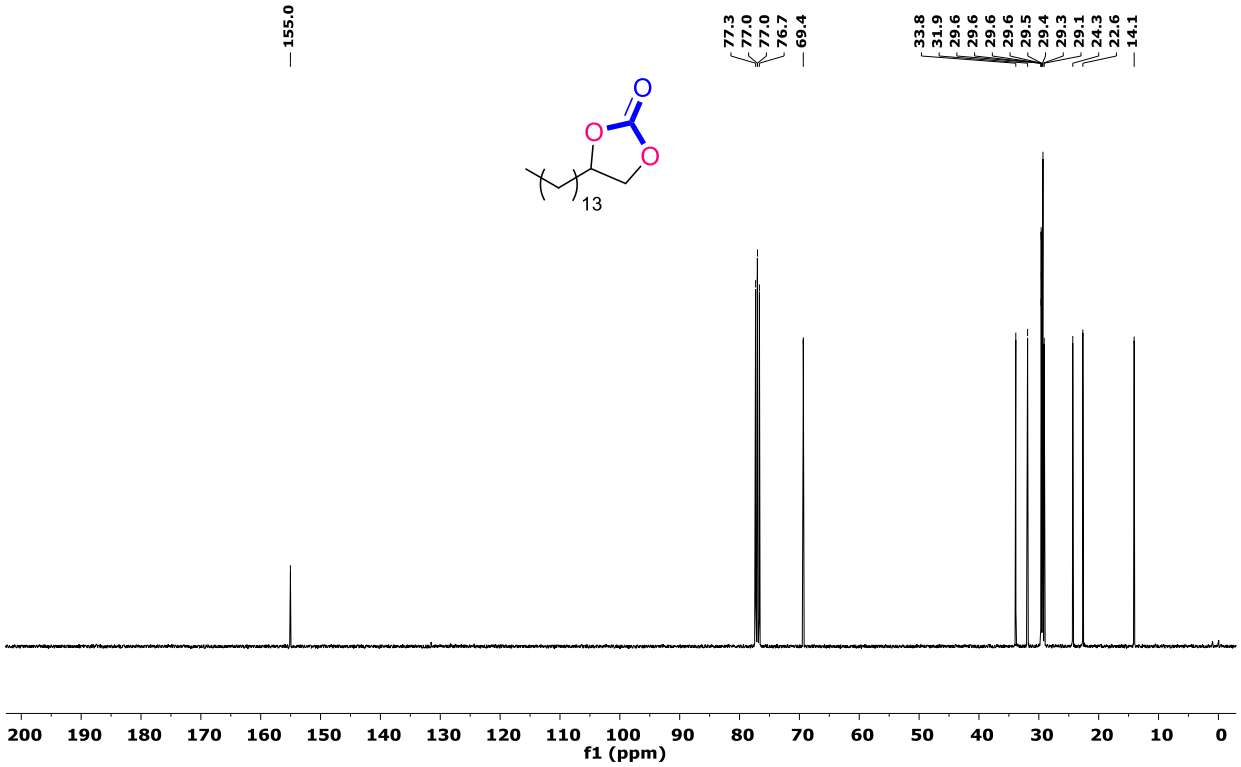
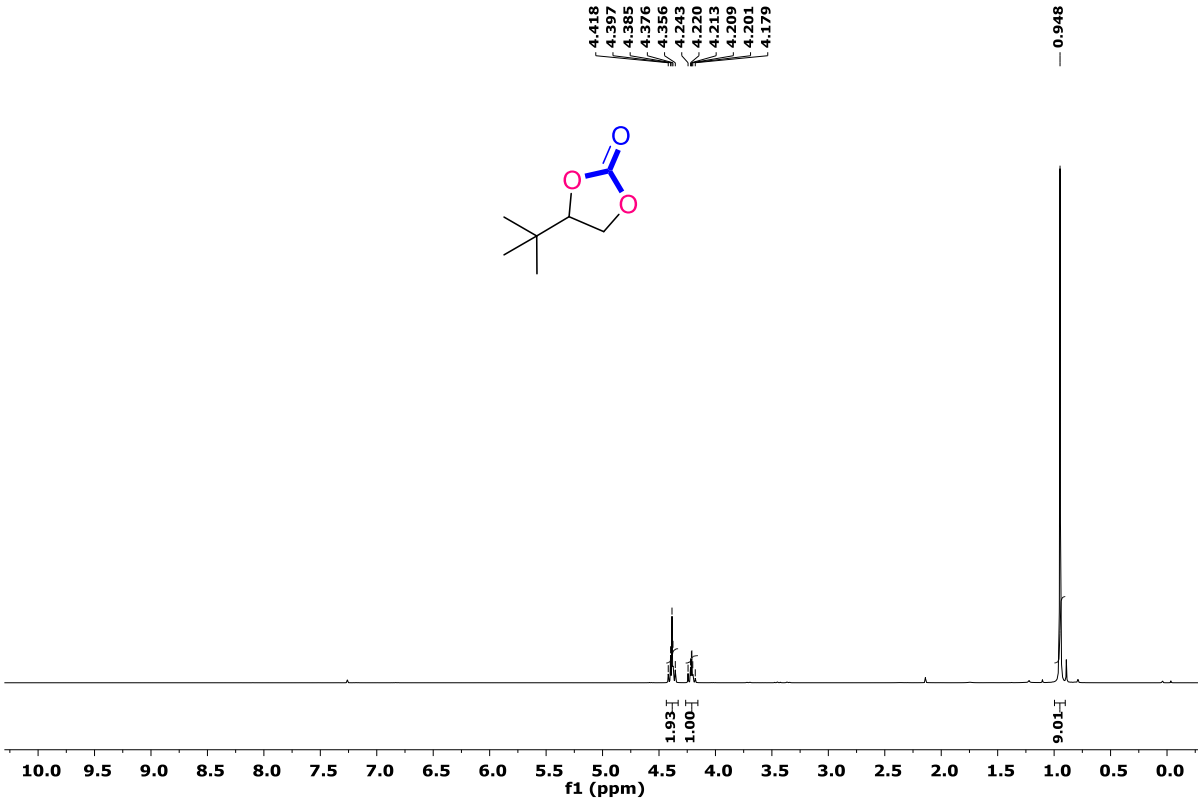
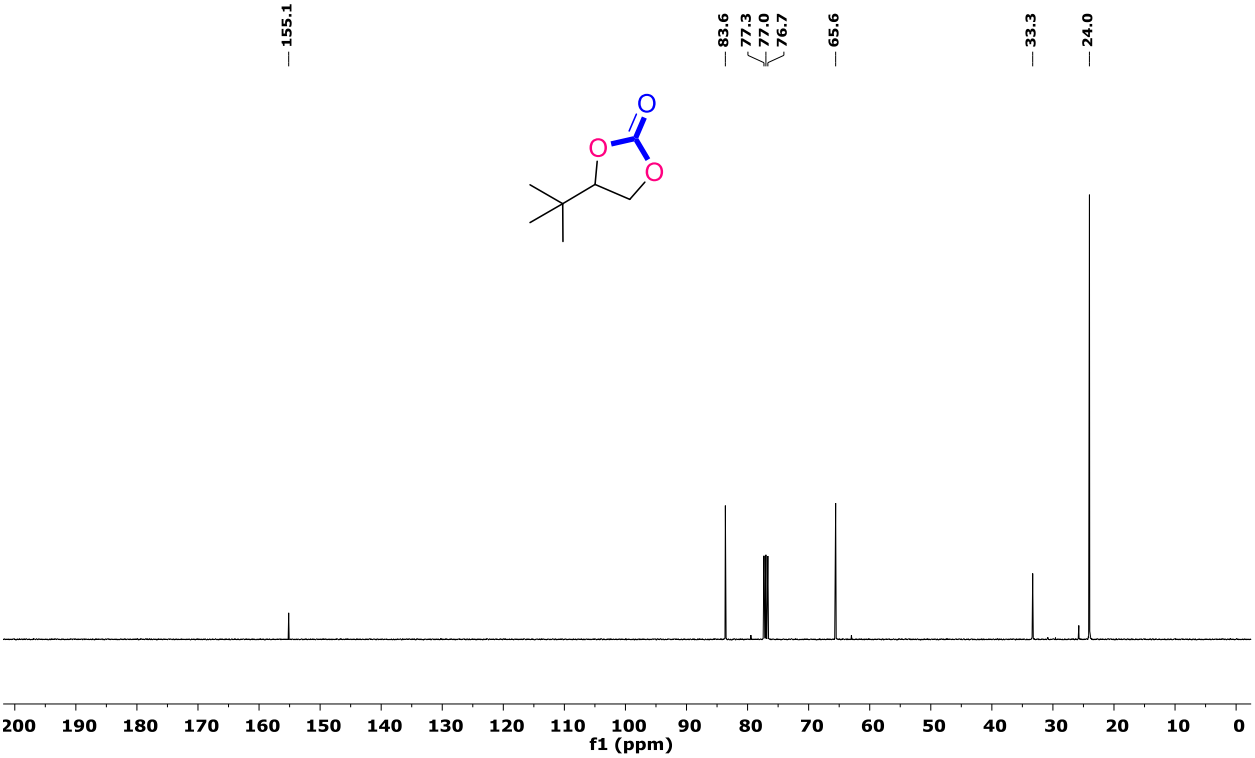


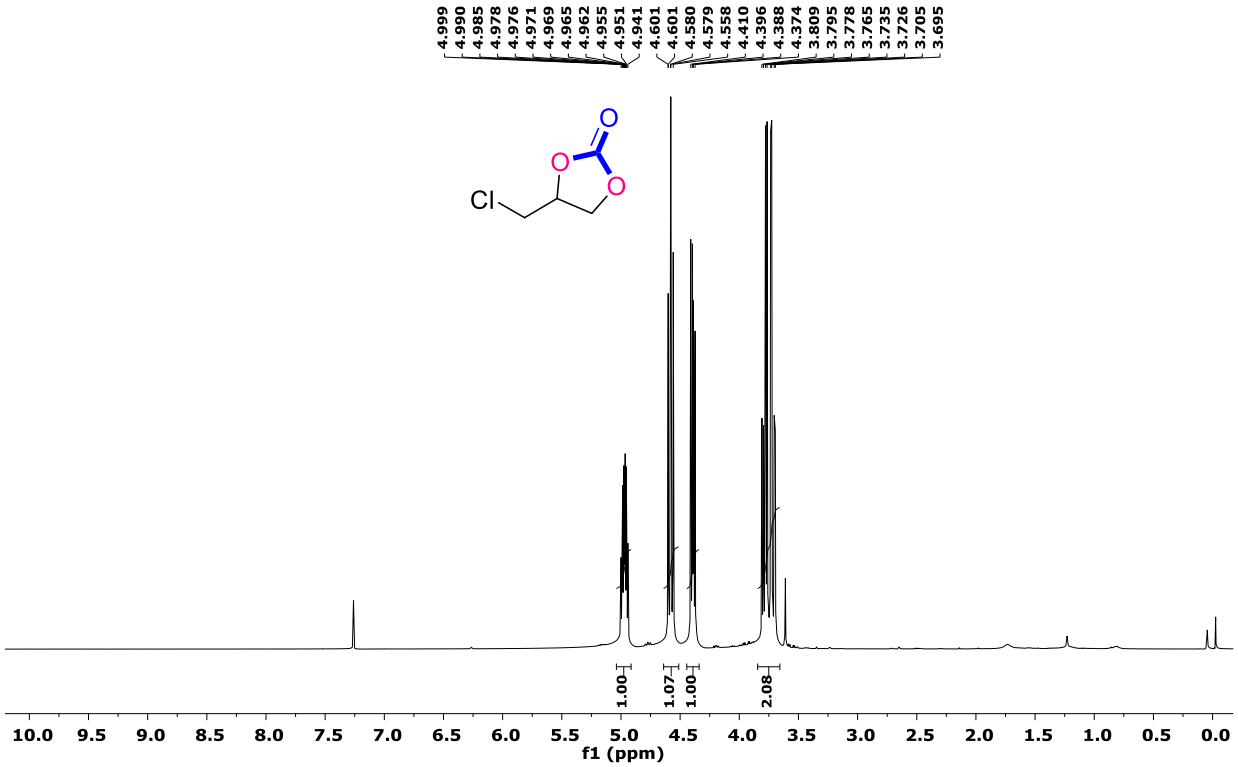


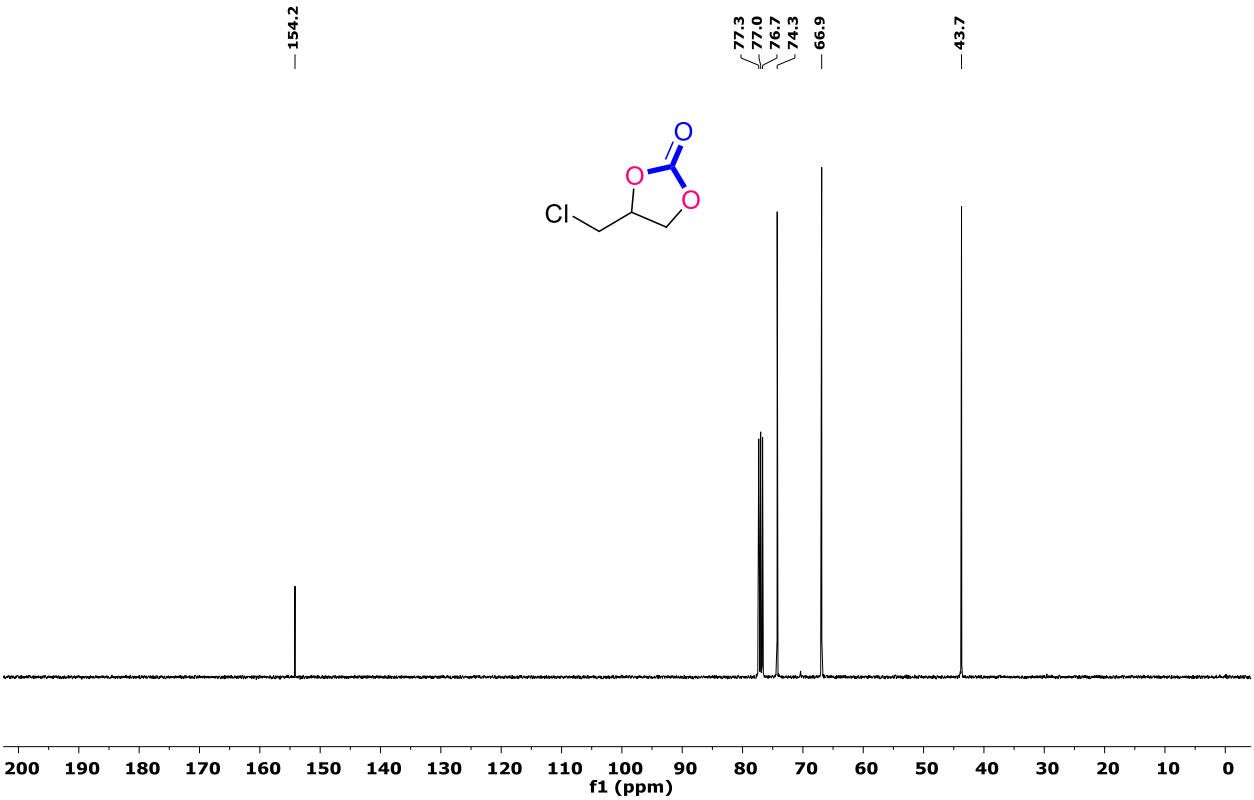
4-(*tert*-Butyl)-1,3-dioxolan-2-one (3h)



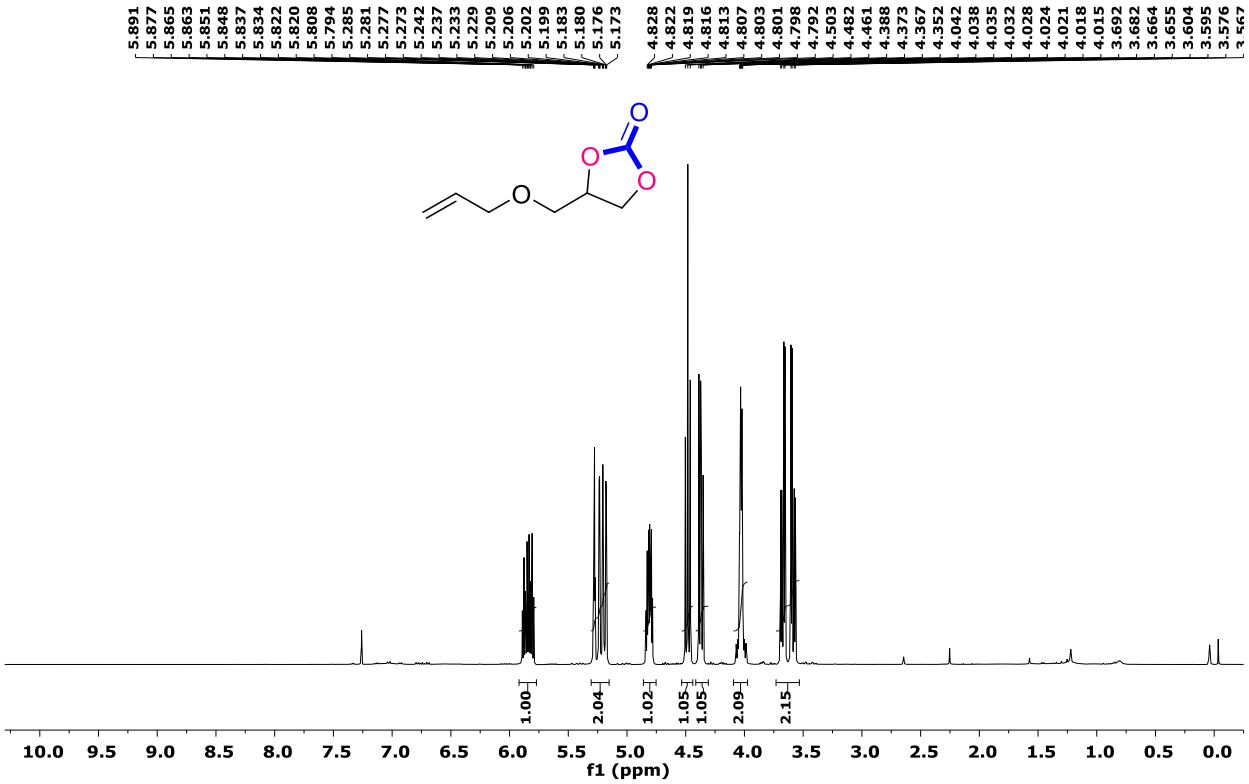


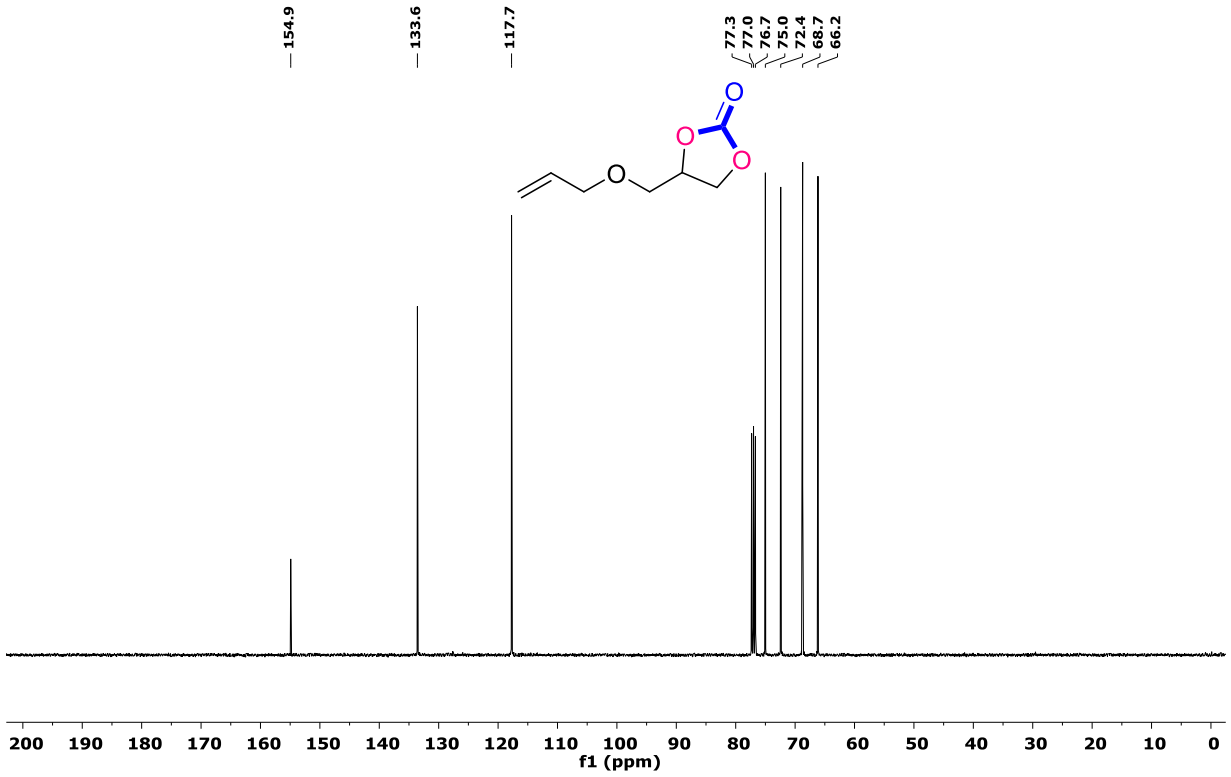
4-(Chloromethyl)-1,3-dioxolan-2-one (3i)



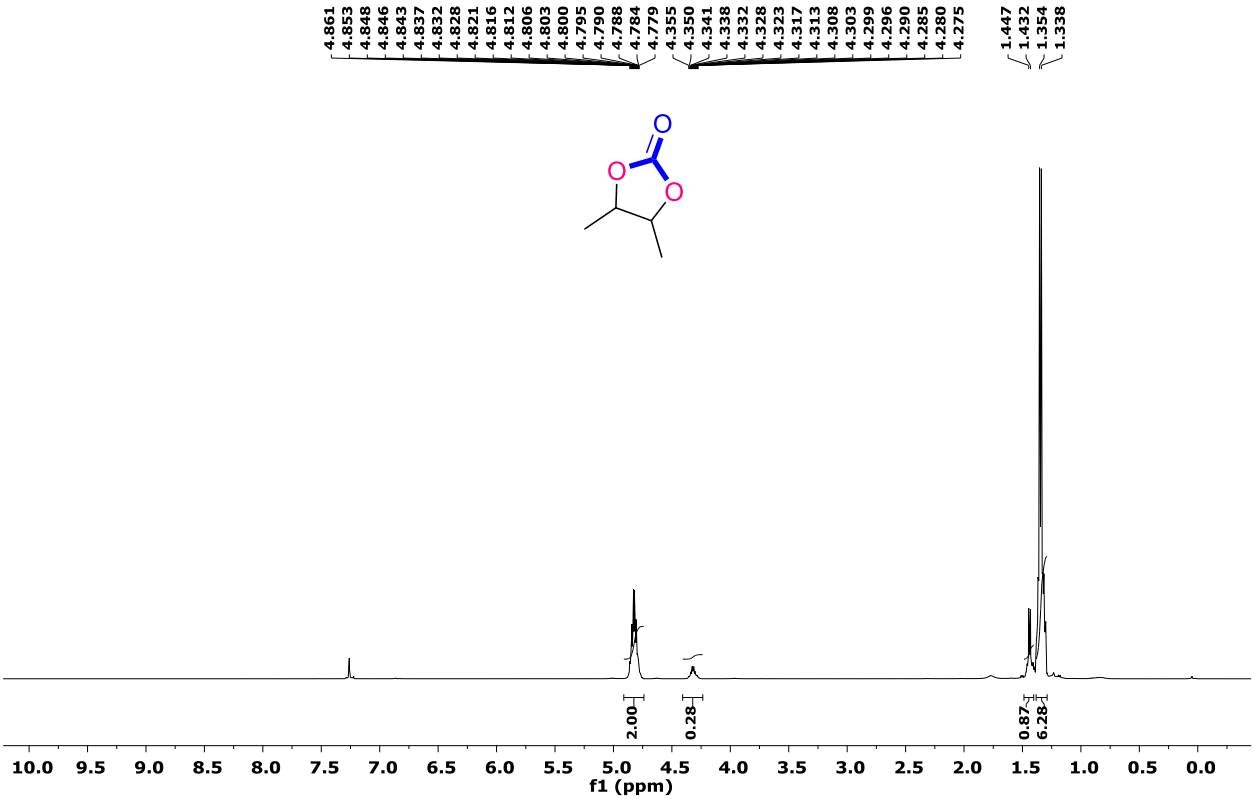


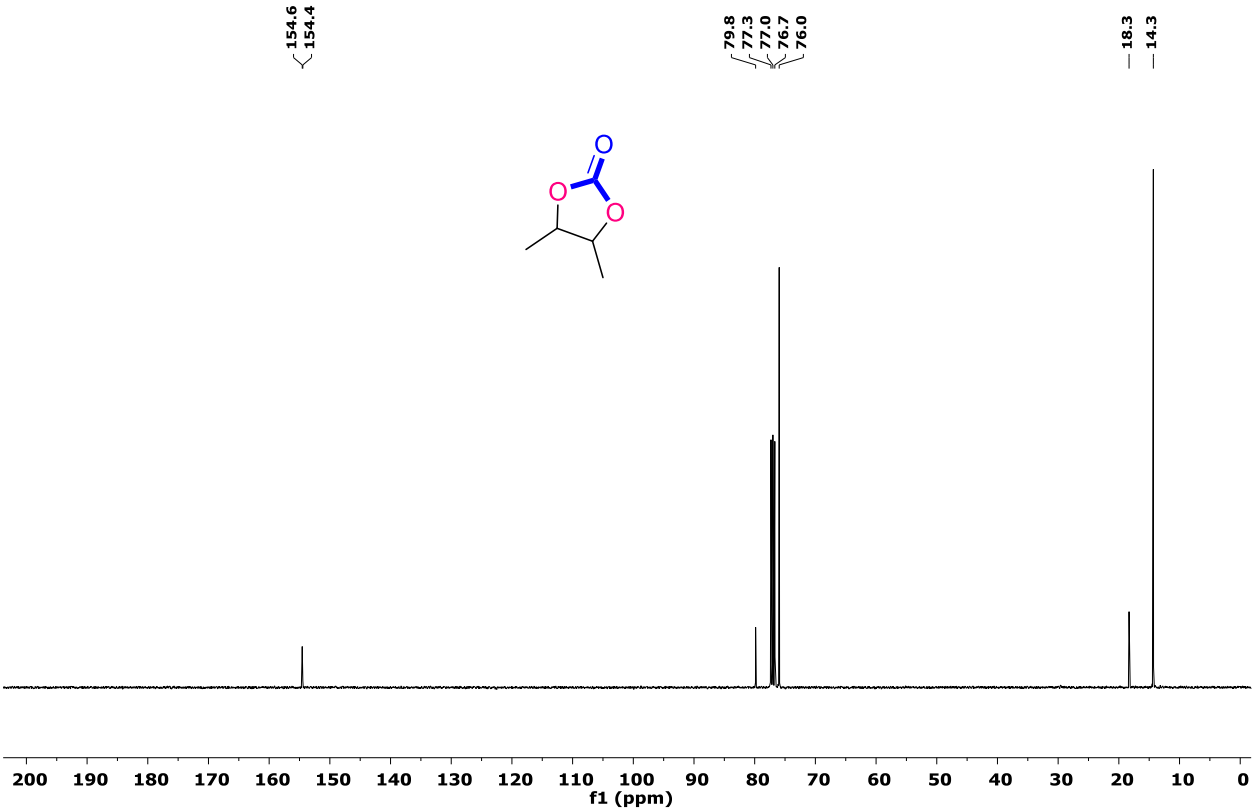
4-((Allyloxy)methyl)-1,3-dioxolan-2-one (3j)



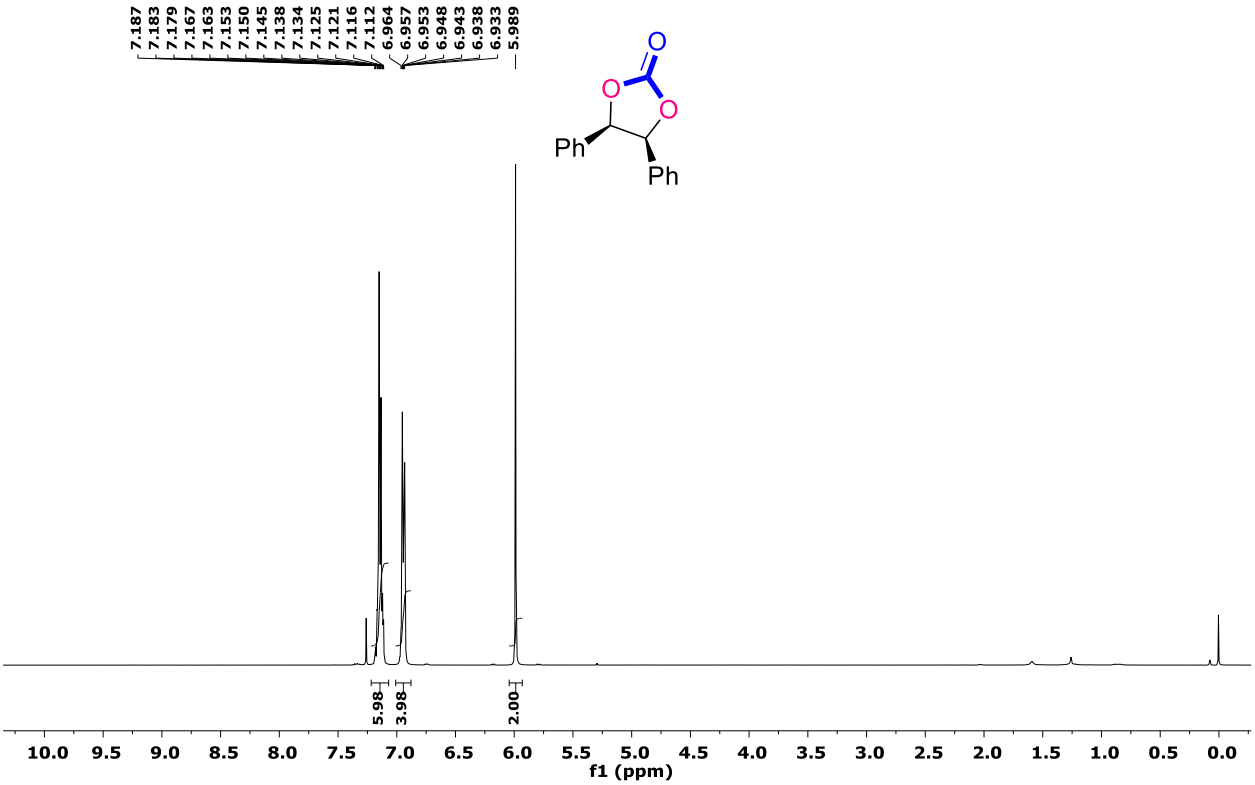


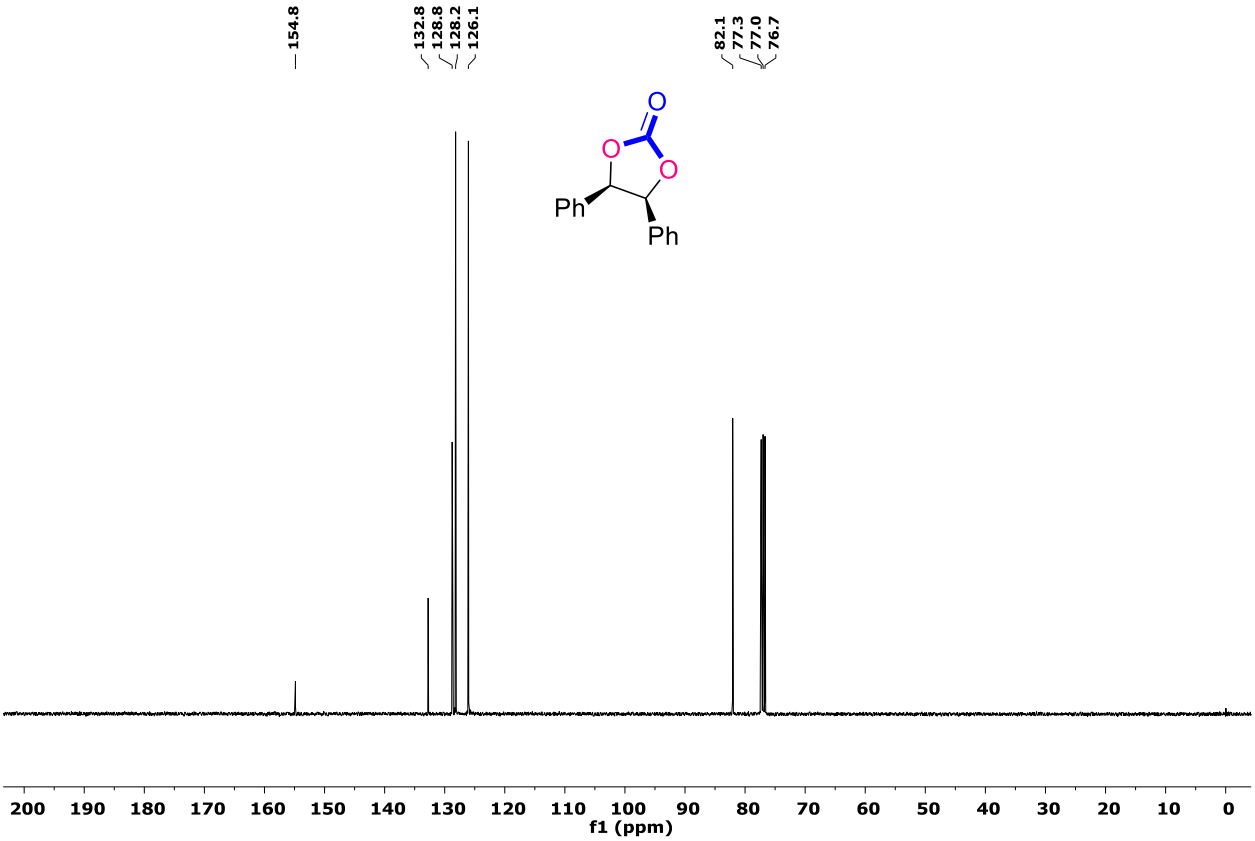
4,5-Dimethyl-1,3-dioxolan-2-one (3k)



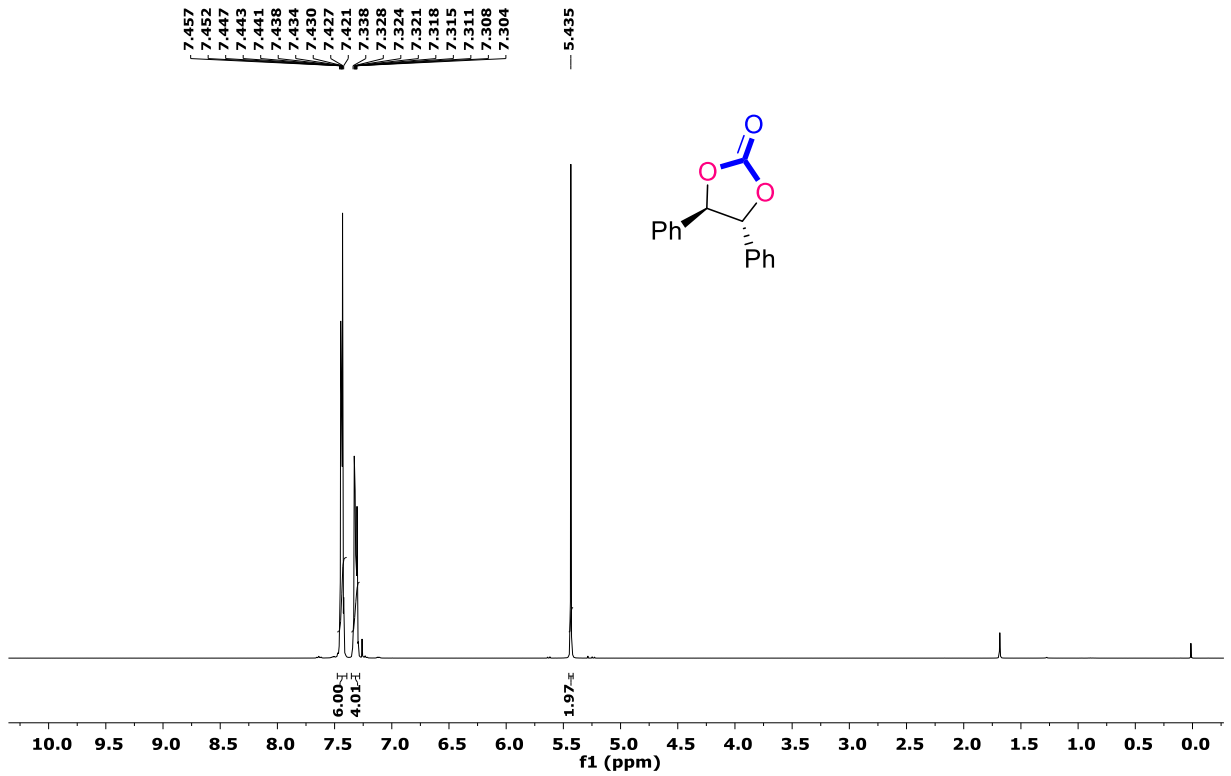


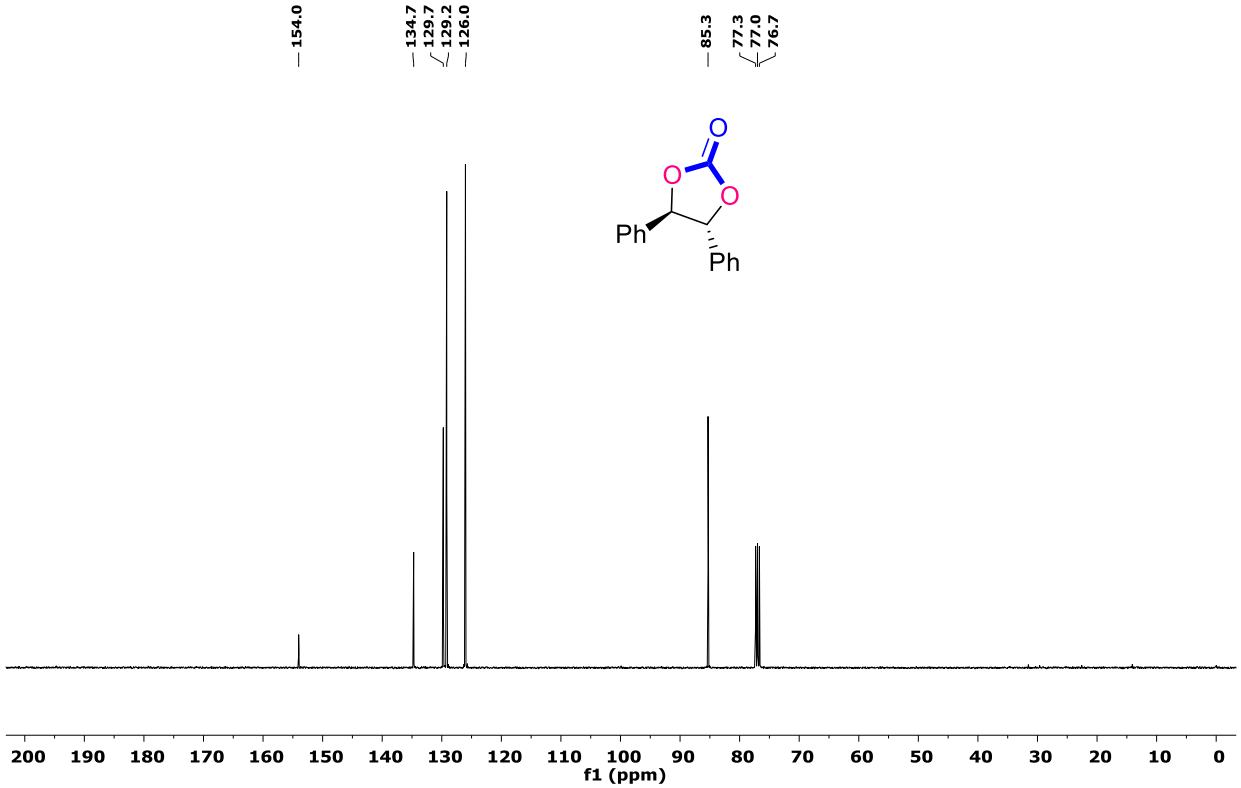
(*4S*,*5R*)-4,5-diphenyl-1,3-dioxolan-2-one (3l)



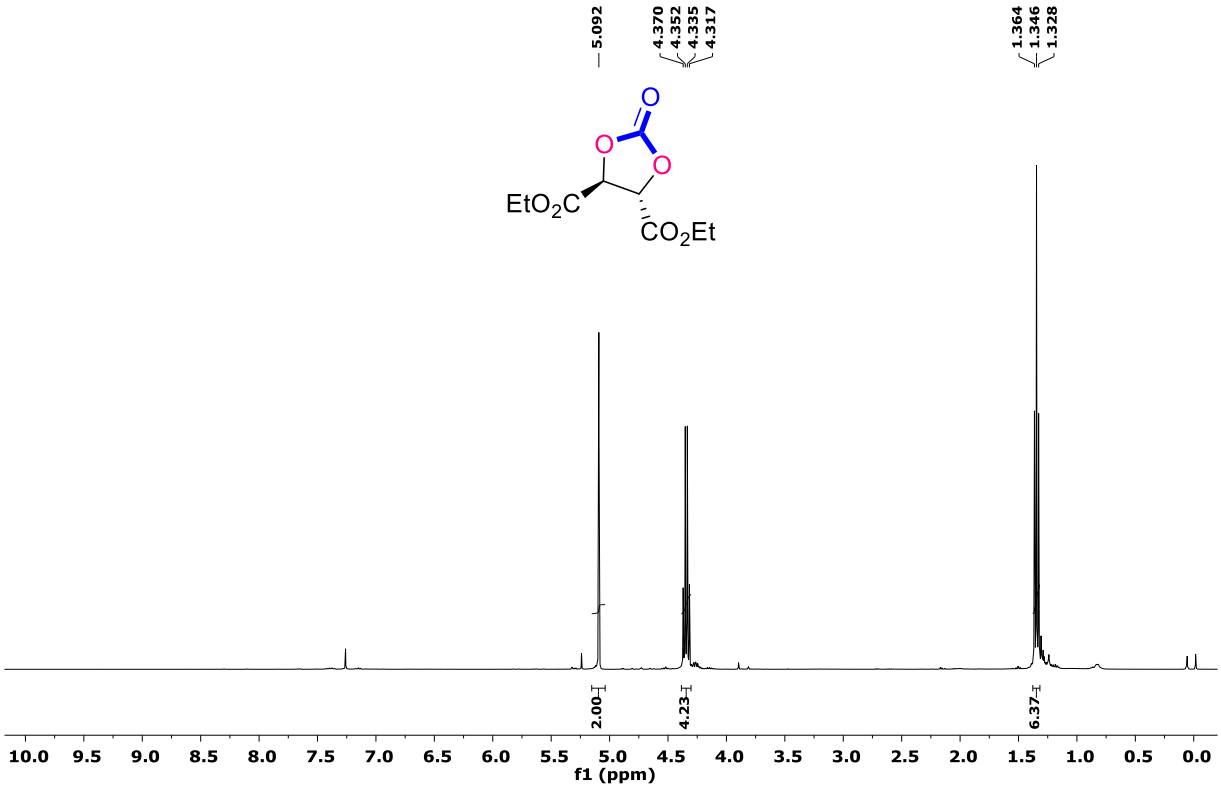


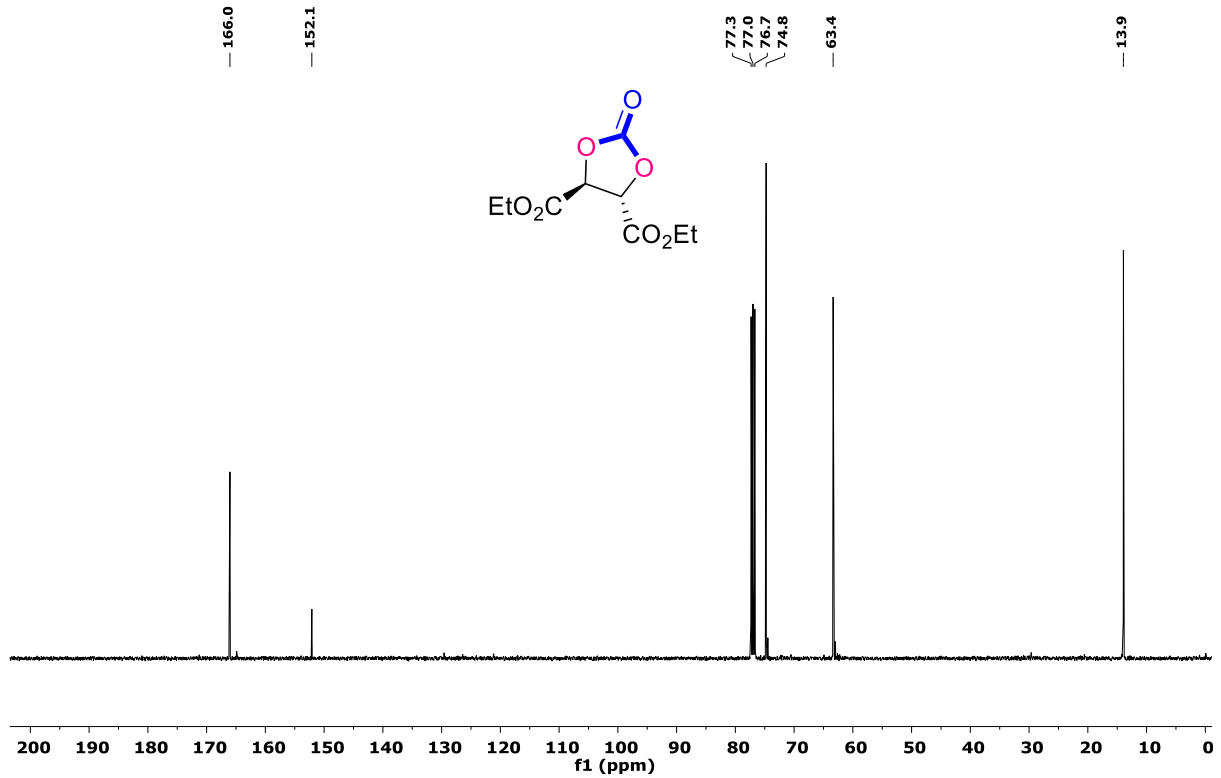
(*4R*,*5R*)-4,5-diphenyl-1,3-dioxolan-2-one (3m)



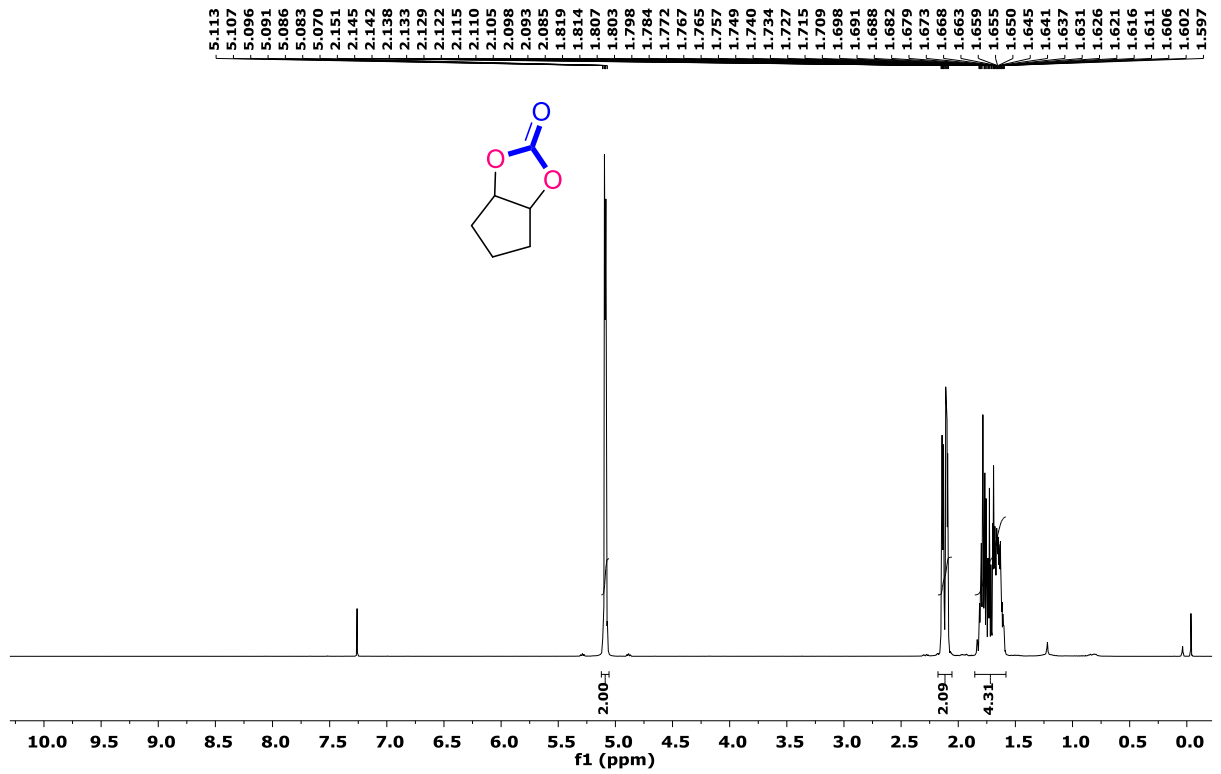


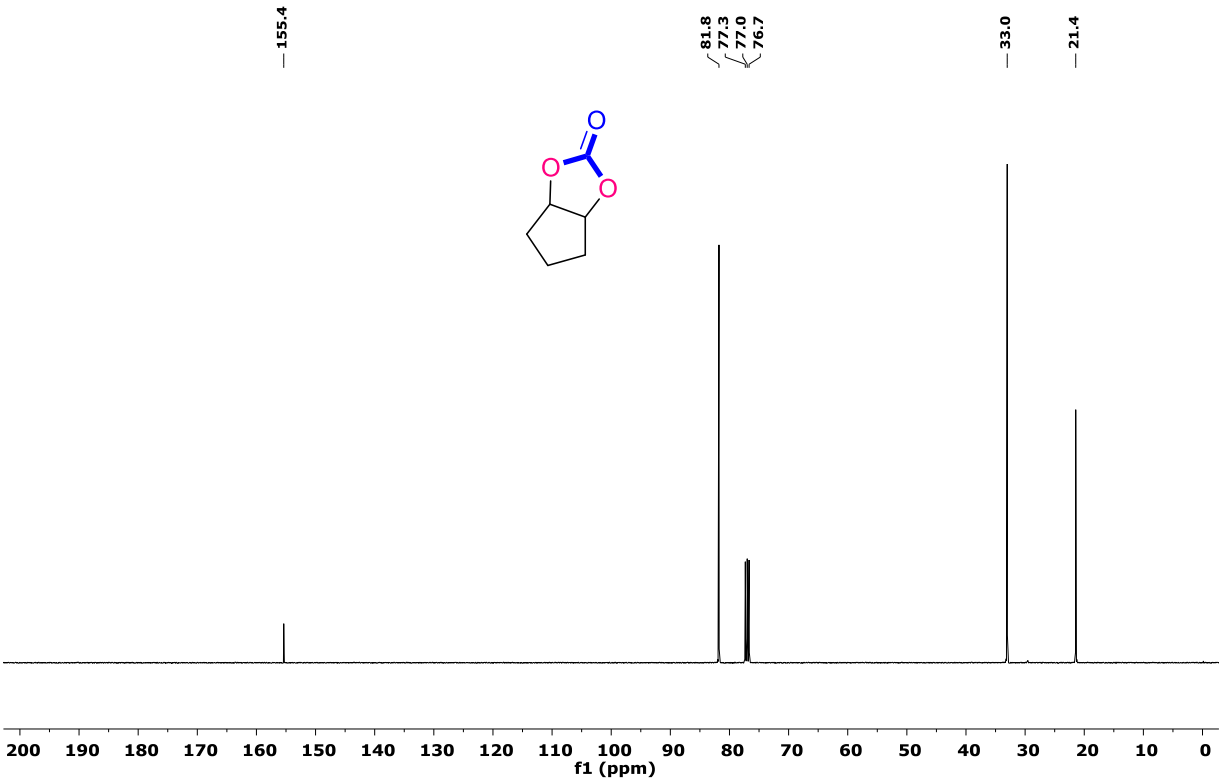
Diethyl (*4S*,*5S*)-2-oxo-1,3-dioxolane-4,5-dicarboxylate (3n)



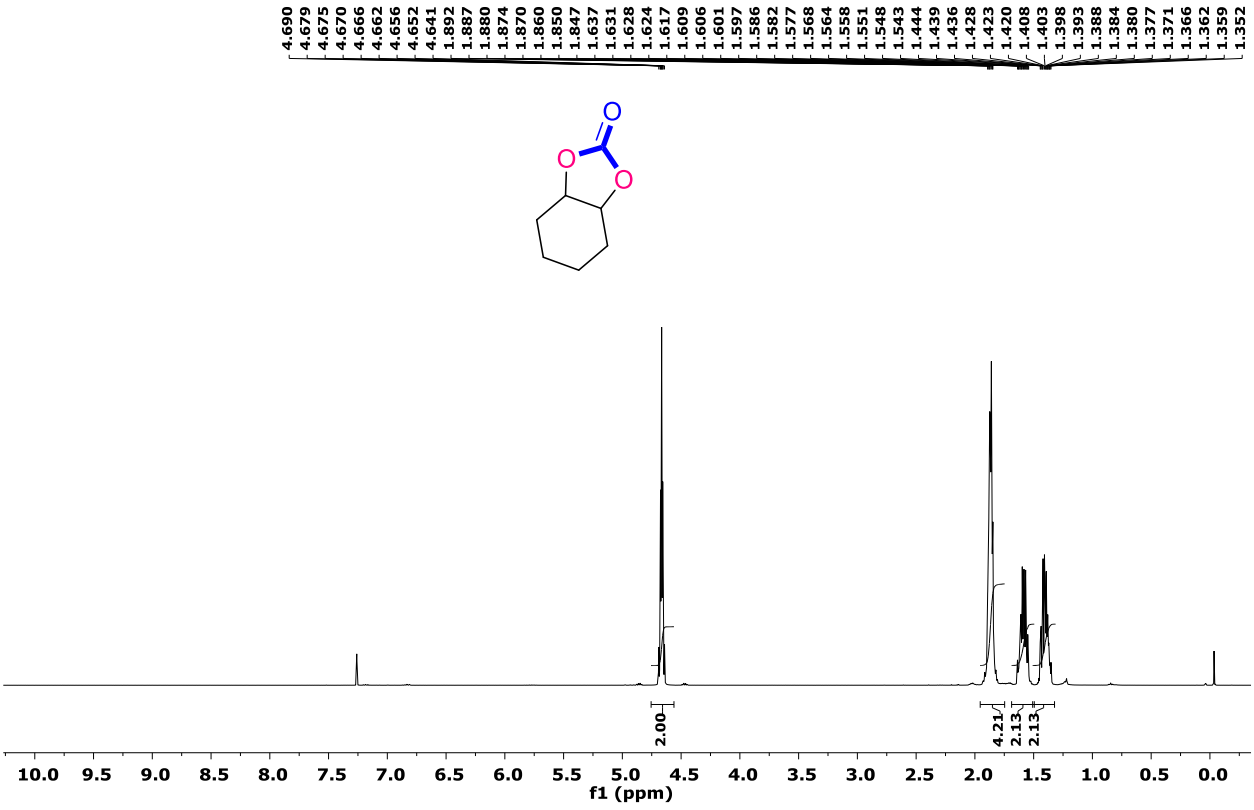


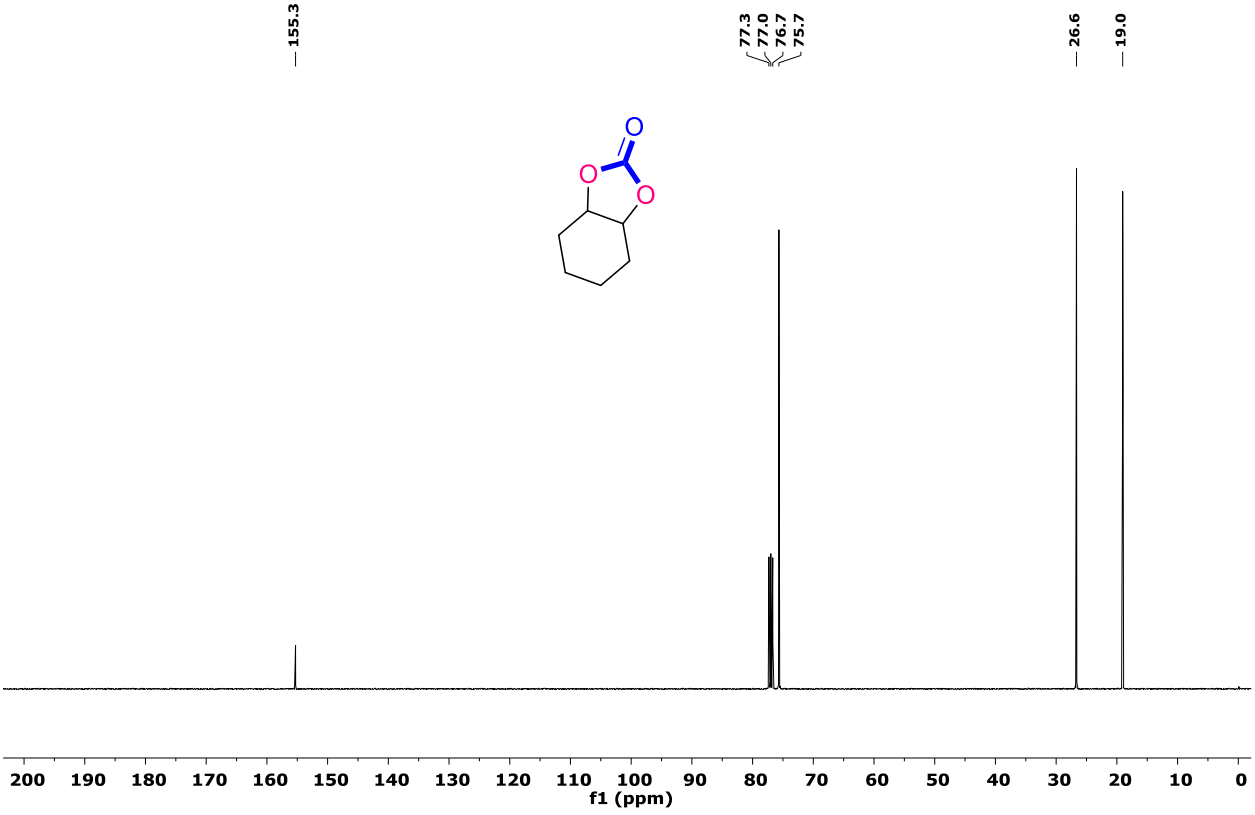
(*3aR,6aS*)-Tetrahydro-4*H*-cyclopenta[*d*][1,3]dioxol-2-one (3o)



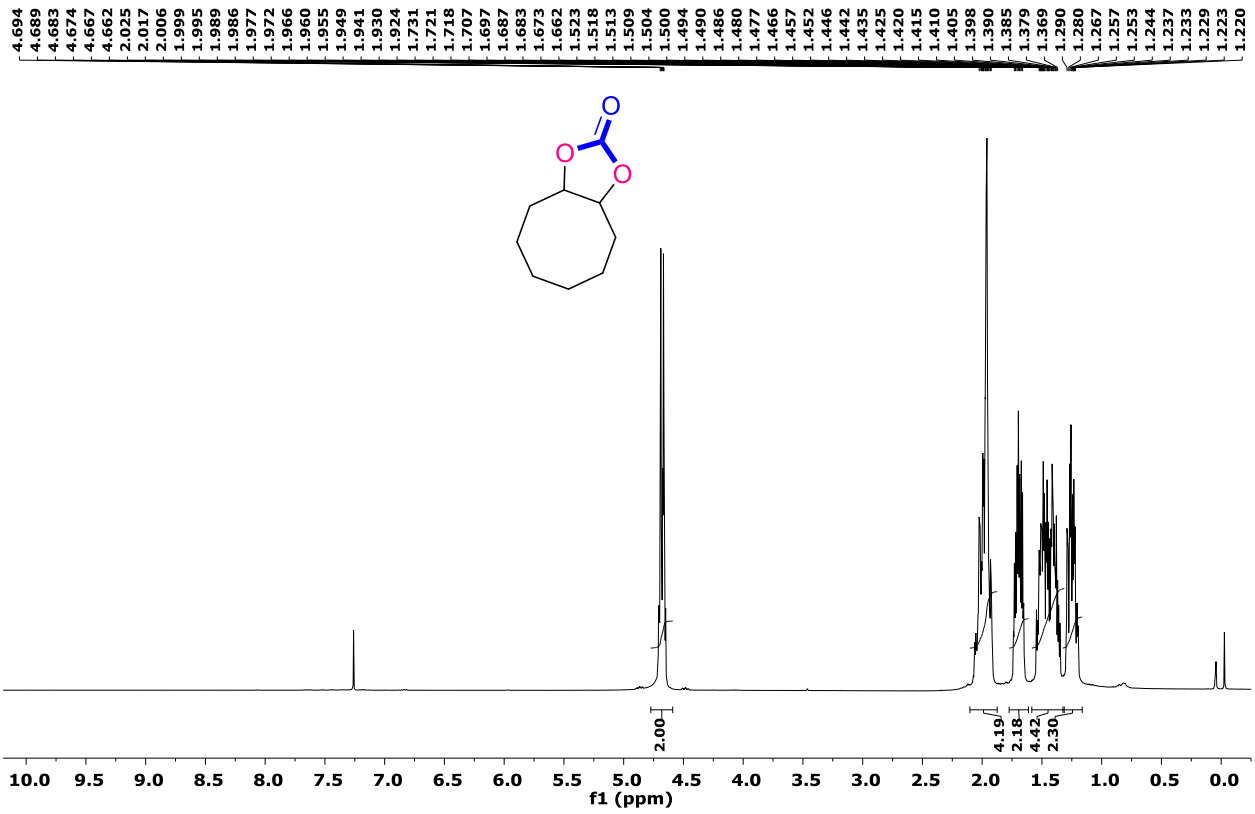


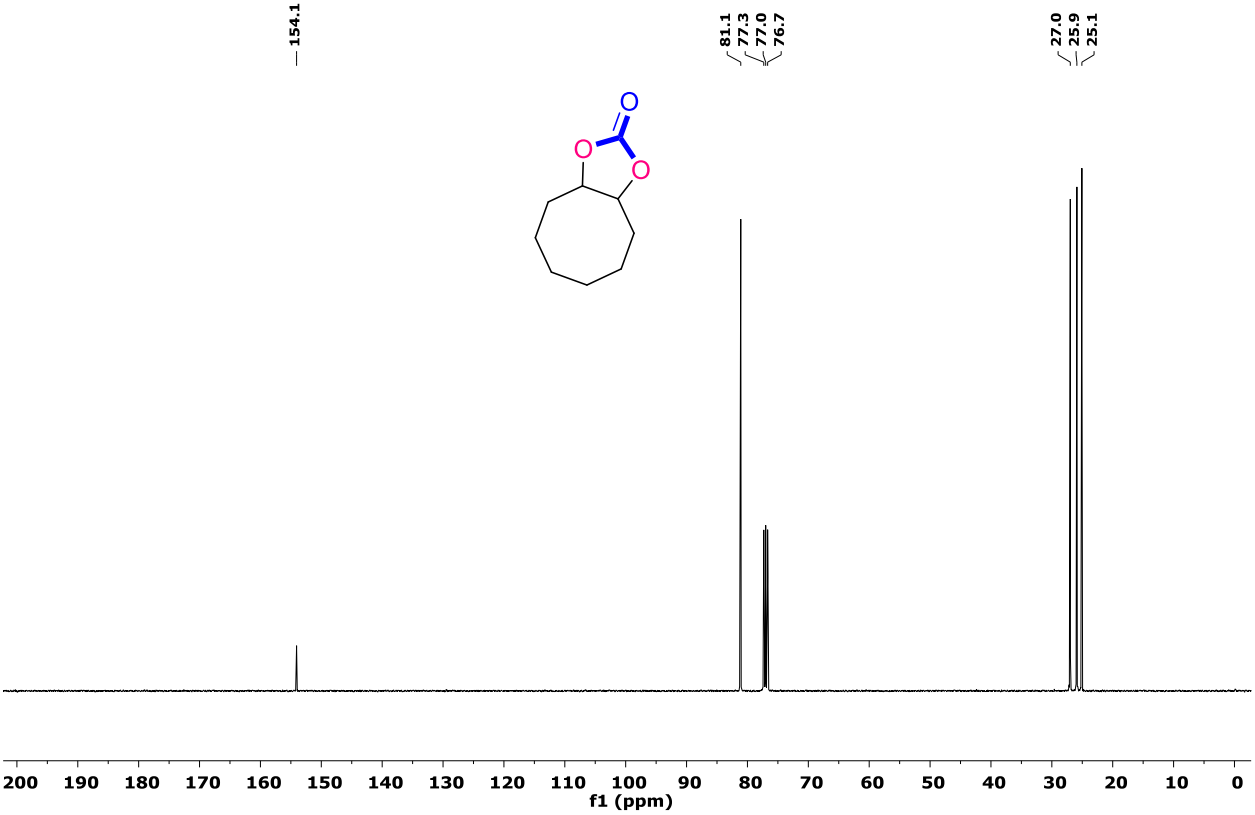
(*3aR,7aS*)-Hexahydrobenzo[*d*][1,3]dioxol-2-one (3p)



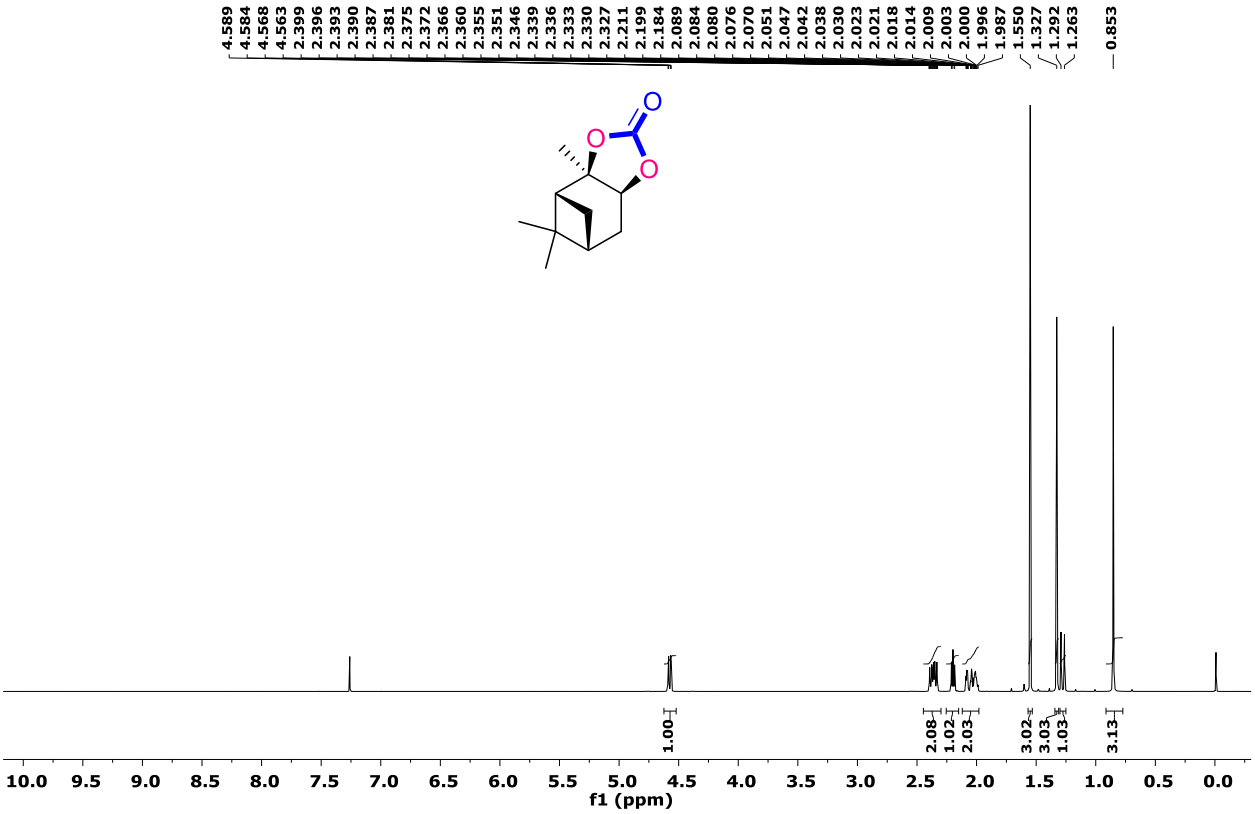


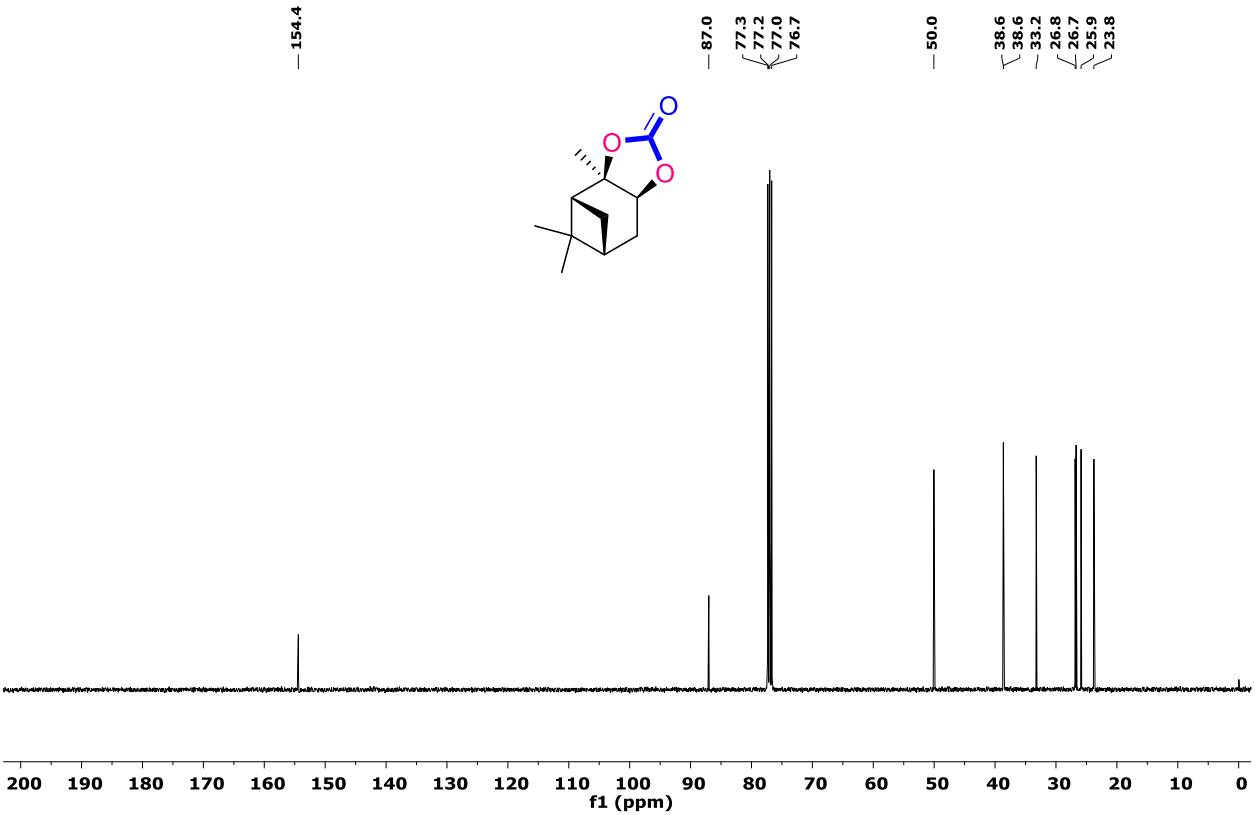
(*3aR,9aS*)-Octahydrocycloocta[*d*][1,3]dioxol-2-one (3q)



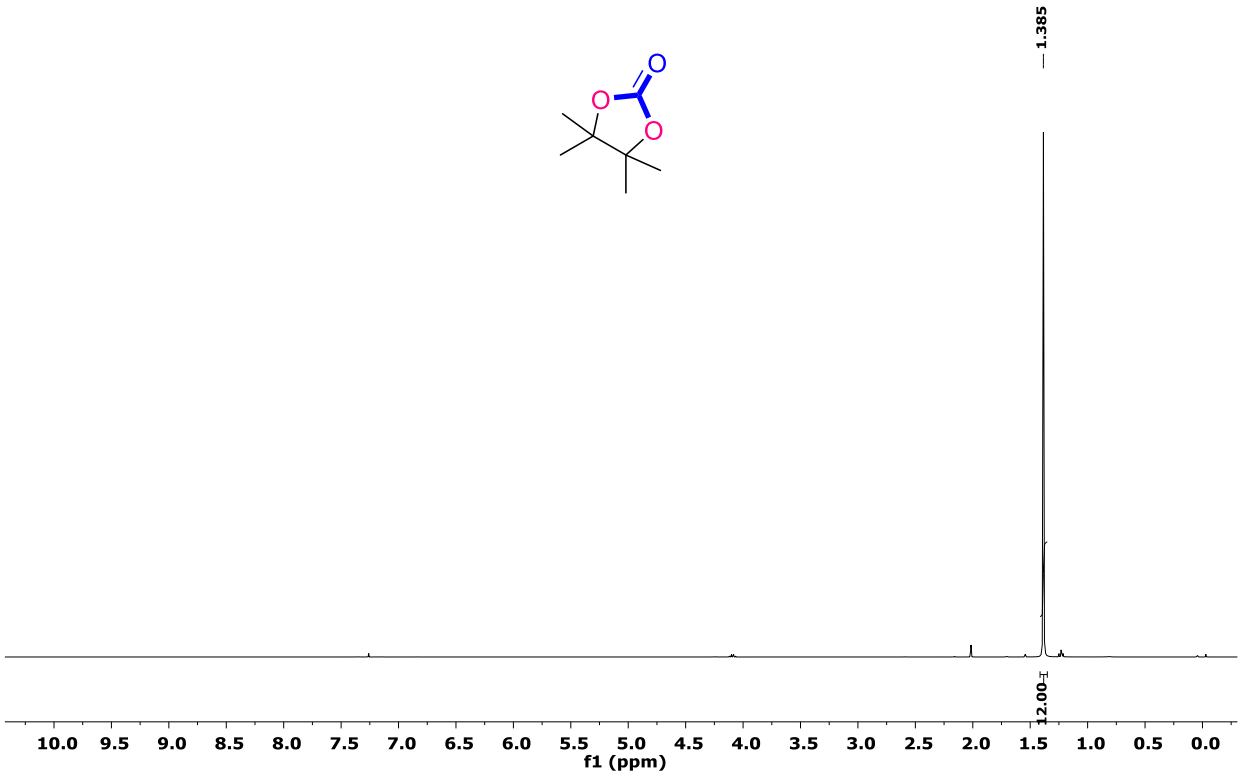


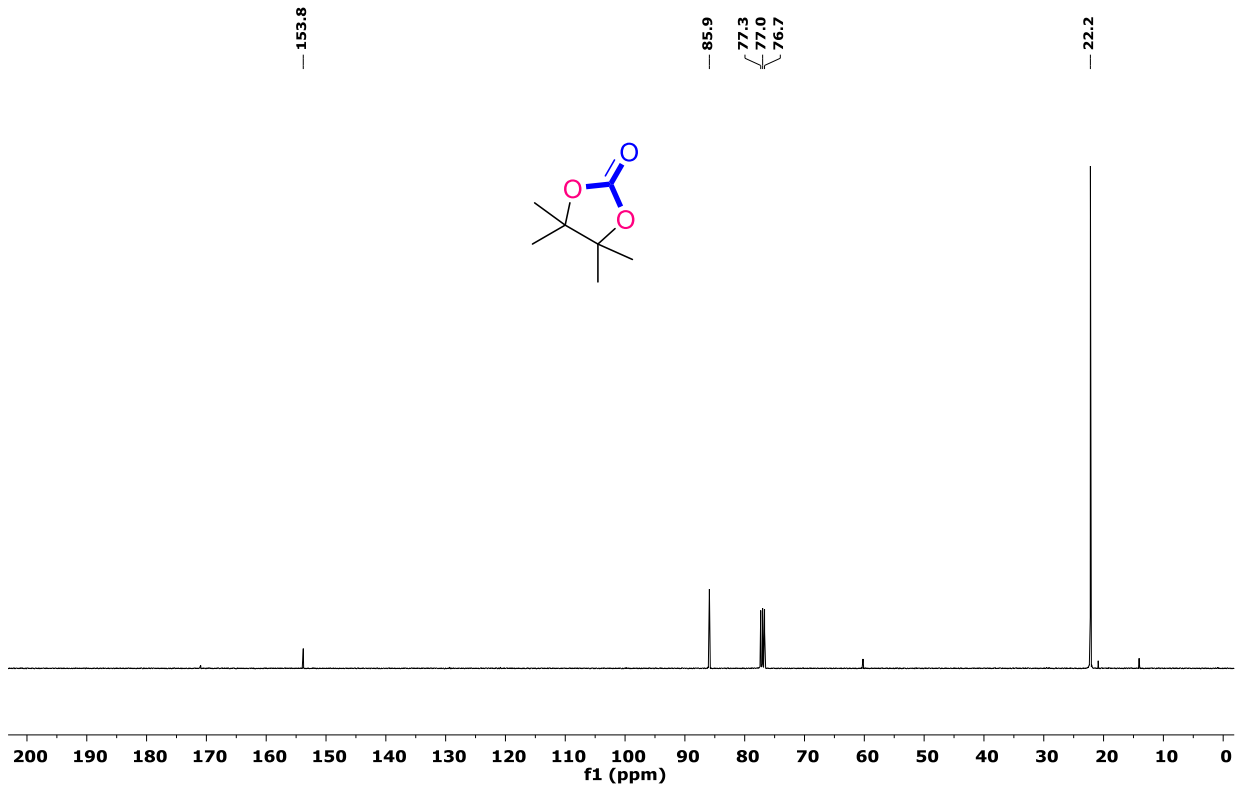
(*3aR,4R,6R,7aS*)-3a,5,5-Trimethylhexahydro-4,6-methanobenzo[*d*][1,3]dioxol-2-one (3r)



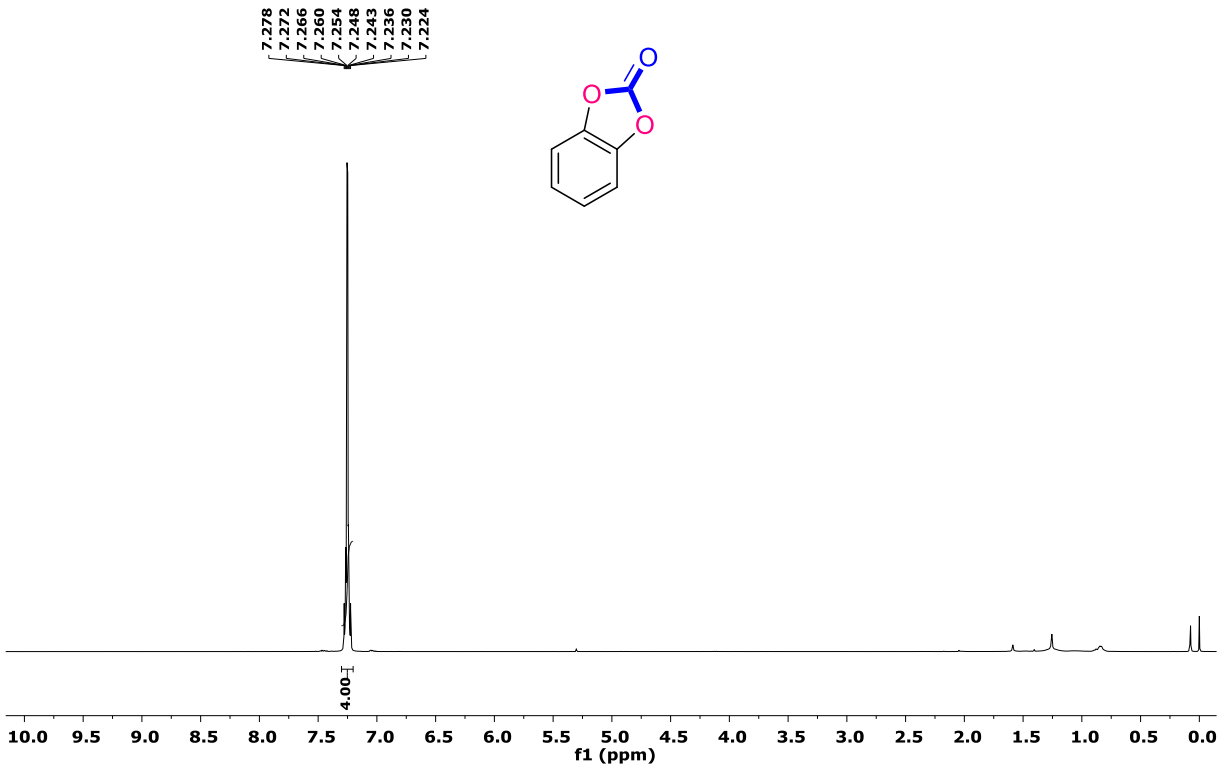


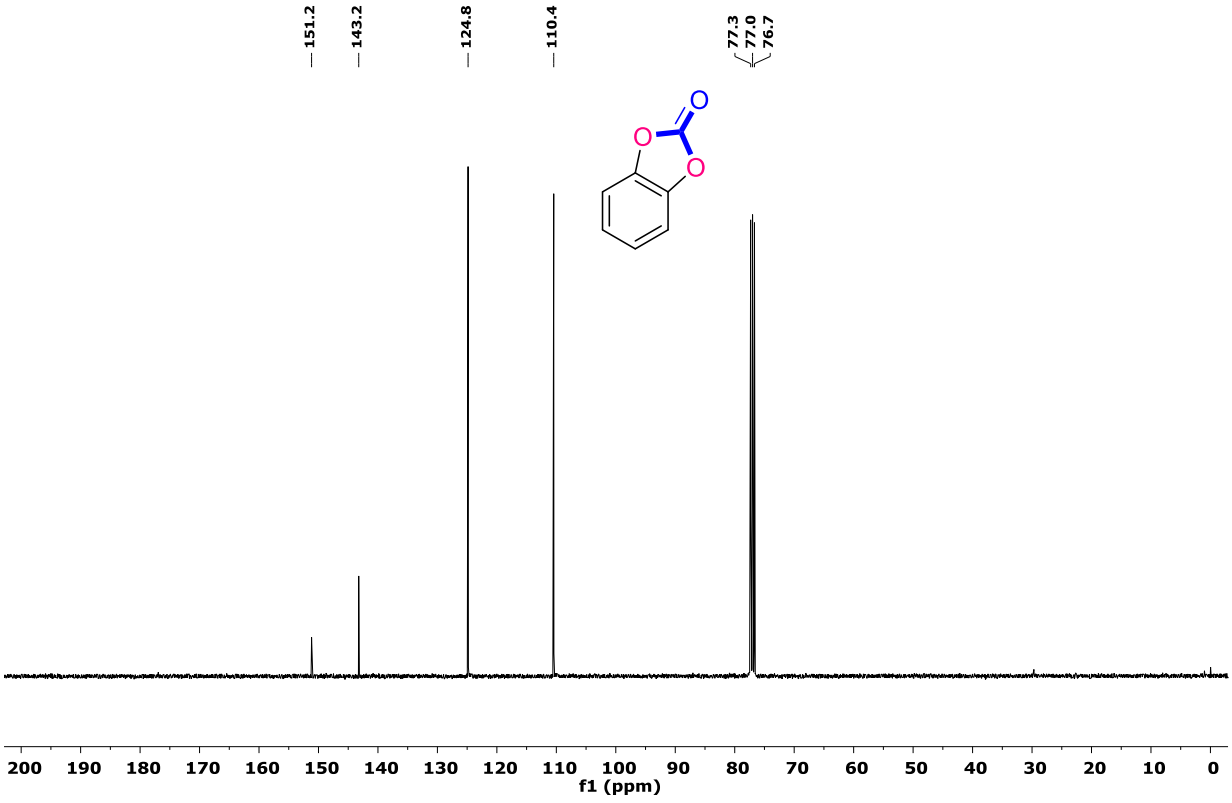
4,4,5,5-Tetramethyl-1,3-dioxolan-2-one (3s)



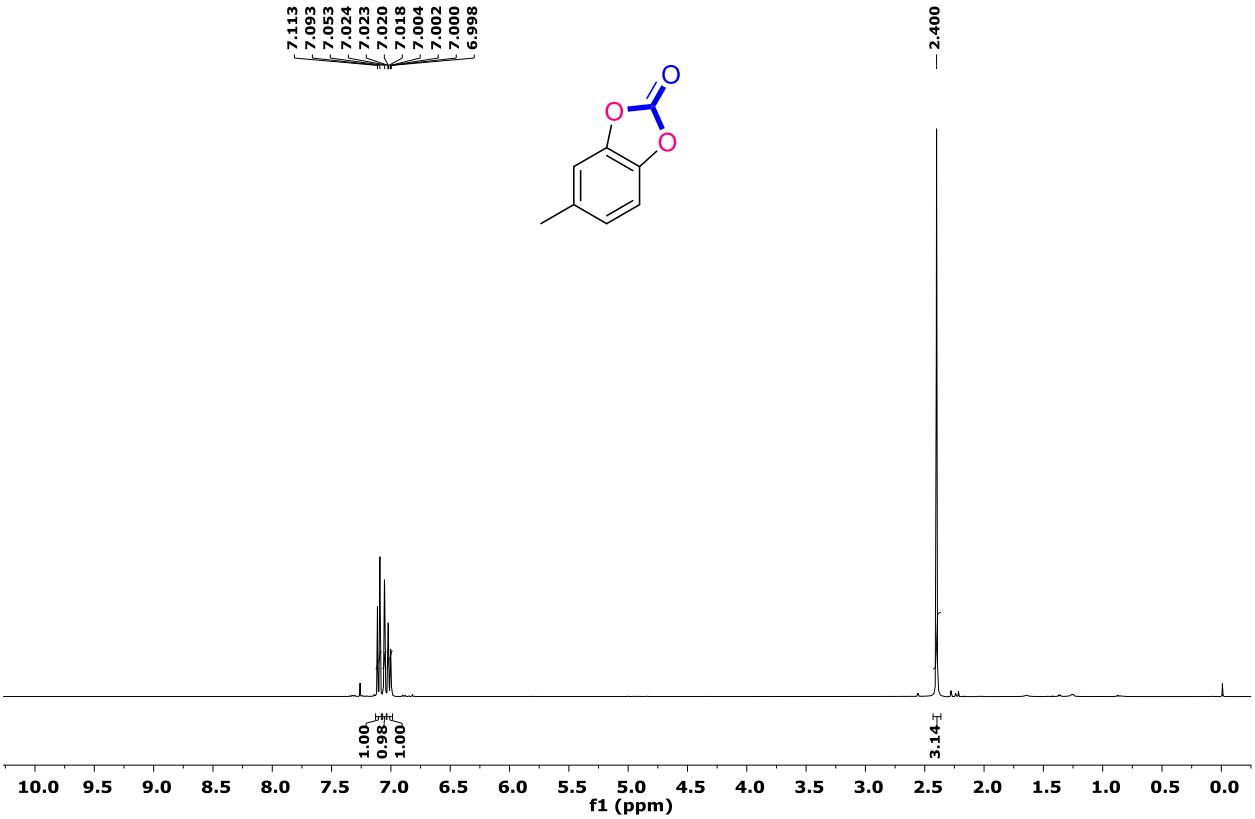


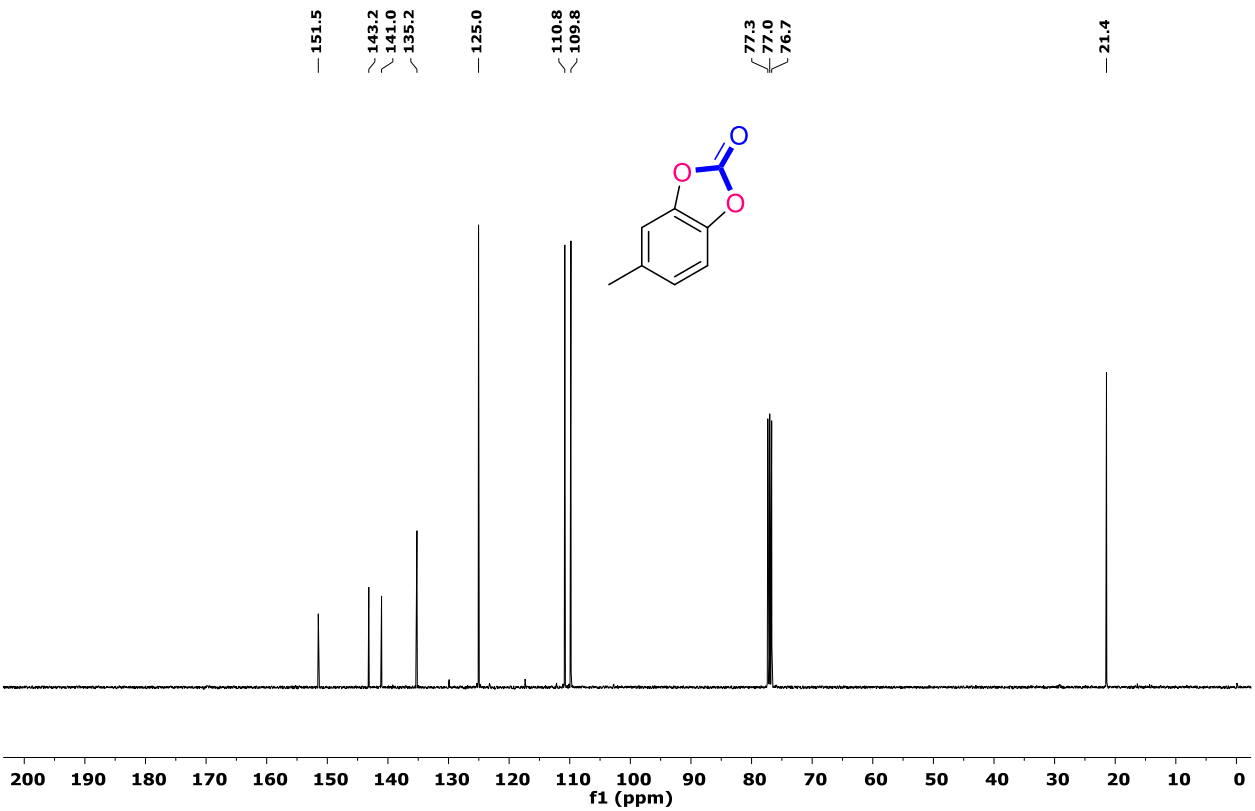
Benzo[*d*][1,3]dioxol-2-one (3t)





5-Methylbenzo[*d*][1,3]dioxol-2-one (3u)





2. Rate Comparison Data

1. Parallel comparison

time(min)	3h	3f
0	**0**	**0**
2	**11**	**9**
5	**24**	**21**
10	**39**	**34**
20	**53**	**48**
30	**60**	**56**
60	**71**	**67**

2. Competitive comparison

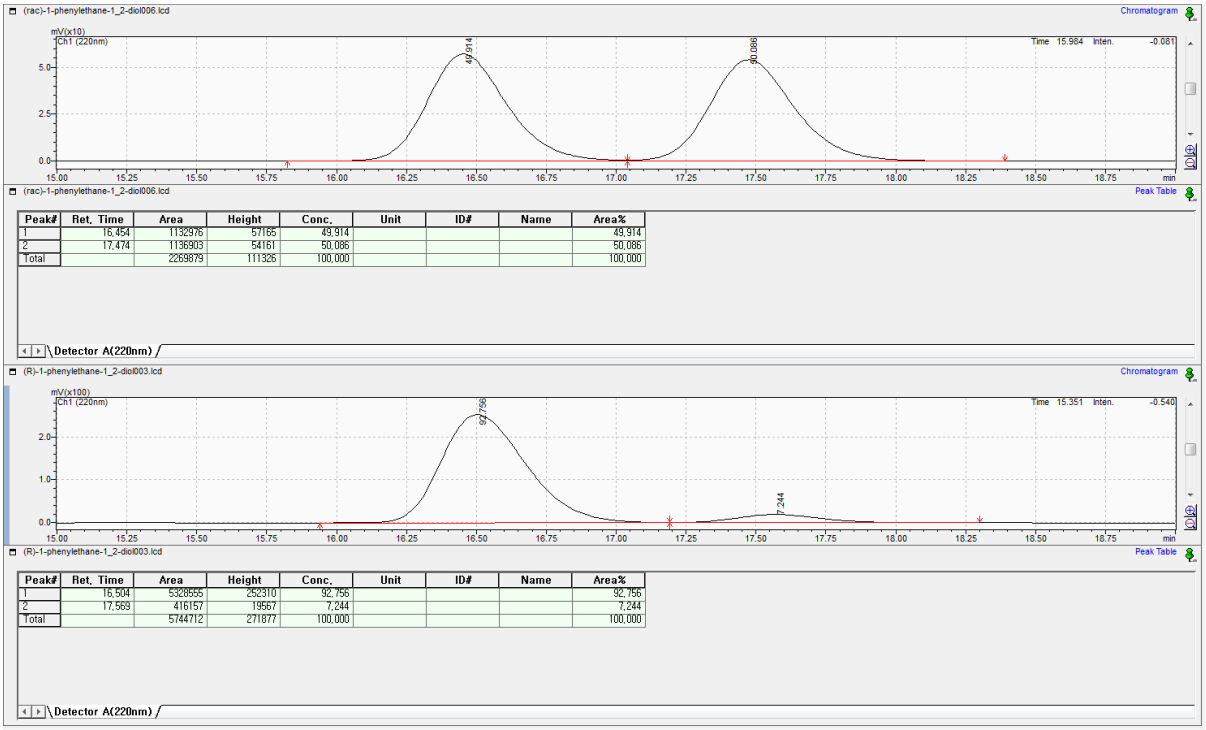
time(min)	3h (%)	3f (%)
0	**0**	**0**
5	**31**	**9**
10	**40**	**13**
30	**53**	**16**
60	**59**	**19**

3. Catalyst comparison

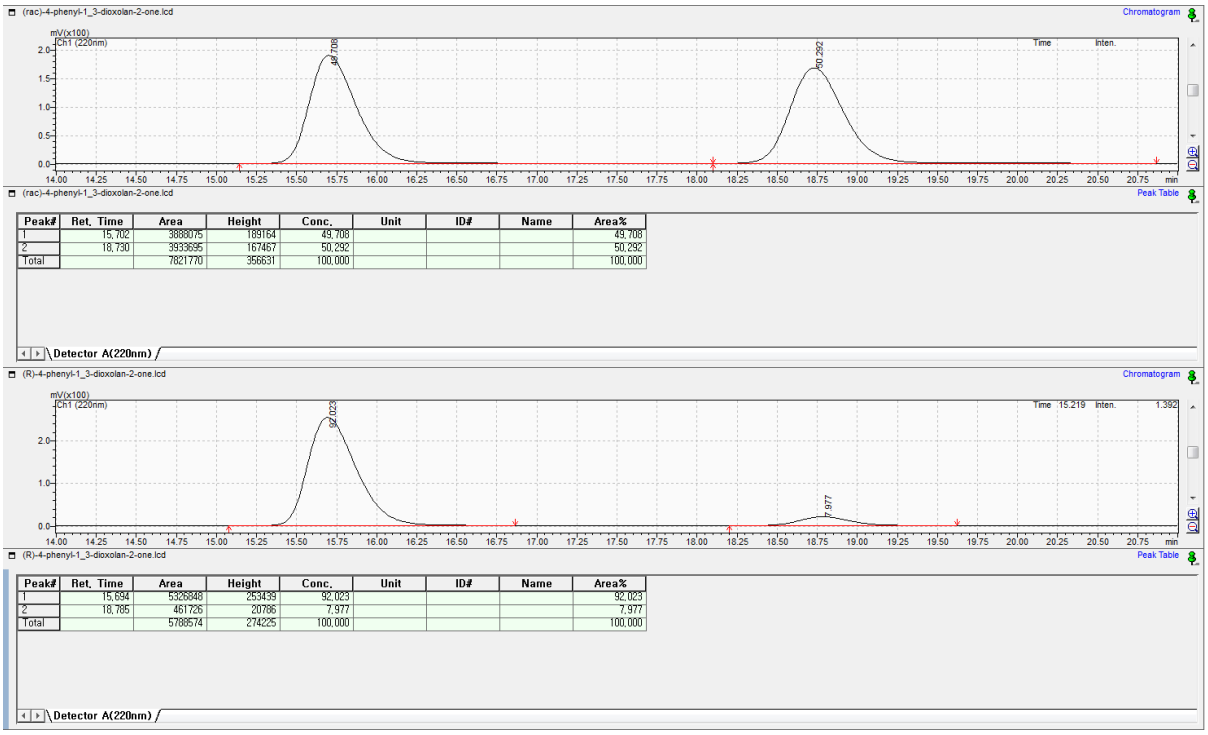
	Yields of 3a (%)		
Time (Min)	**TBD**	**MTBD**	**DBU**
0	**0**	**0**	**0**
5	**47**	**20**	**19**
10	**62**	**30**	**28**
30	**78**	**52**	**52**

3. HPLC traces of Chirality Transfer Experiment

(*R*)-1-phenyl-1,2-ethanediol (2a)



(*R*)- 4-Phenyl-1,3-dioxolan-2-one (3a)



4. **DSC data of diphenyl carbonate**

Sample: KNM-180813-DC **DSC** File: D:\180813\KNM-180813-DC.001
Size: 3.5500 mg Run Date: 13-Aug-2018 10:16