Practical β-Lactone Synthesis: Epoxide Carbonylation at 1 atm

John W. Kramer, Emil B. Lobkovsky, Geoffrey W. Coates*

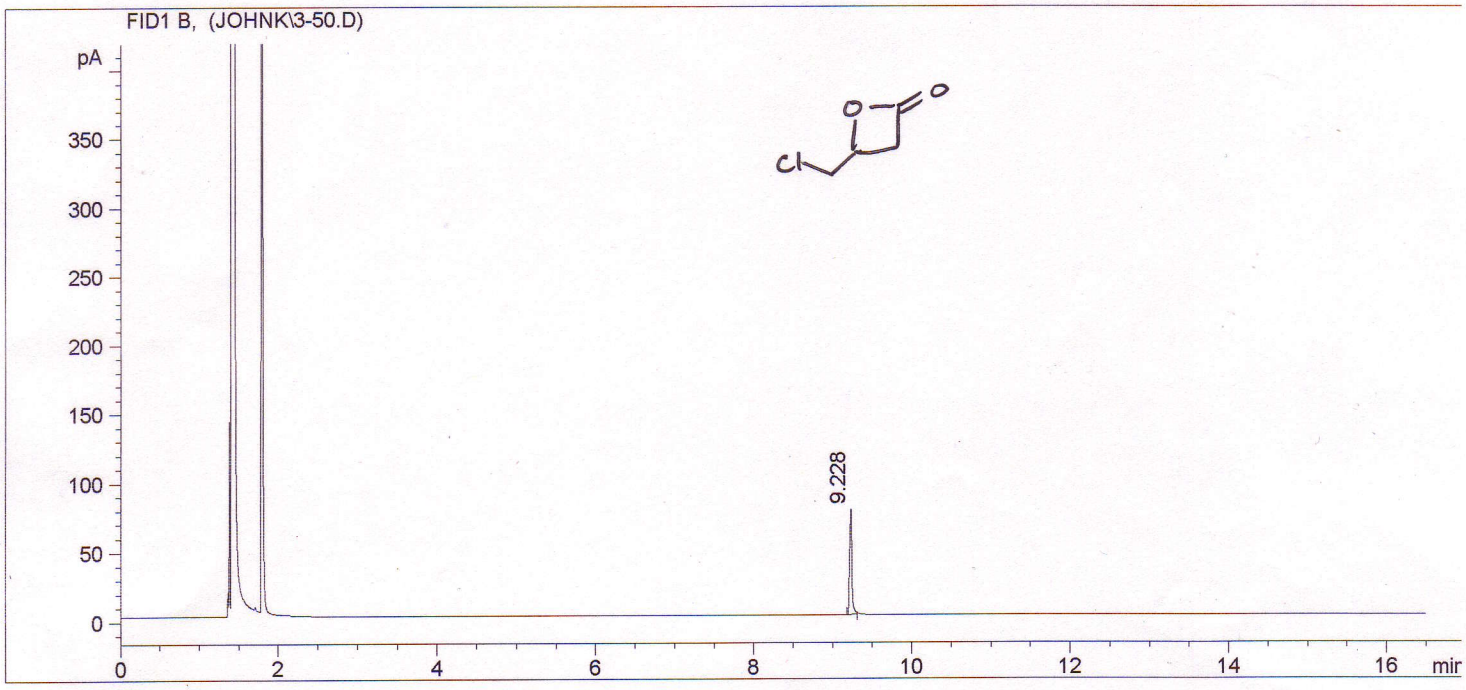
General Procedure for Determination of Lactone Purity:

The purity of lactone products was measured on an HP 6890 Series GC equipped with an HP 19091J-413 phenylmethyl silicone column (0.32 mm × 30 m) using helium as the carrier gas. Upon injection at 55 °C, the temperature was held constant for 8 minutes. If necessary, the oven temperature was increased in the following increments: 30 °C/min to 100 °C and held for 7 minutes, then 30 °C/min to 130 °C and held for 5 minutes, and finally 30 °C/min to 150 °C and held for 5 minutes.

epichlorohydrin to lactone in DME at 100 psi CO

==========

Acq. Method : TLC_IR2.M
Method Profile:



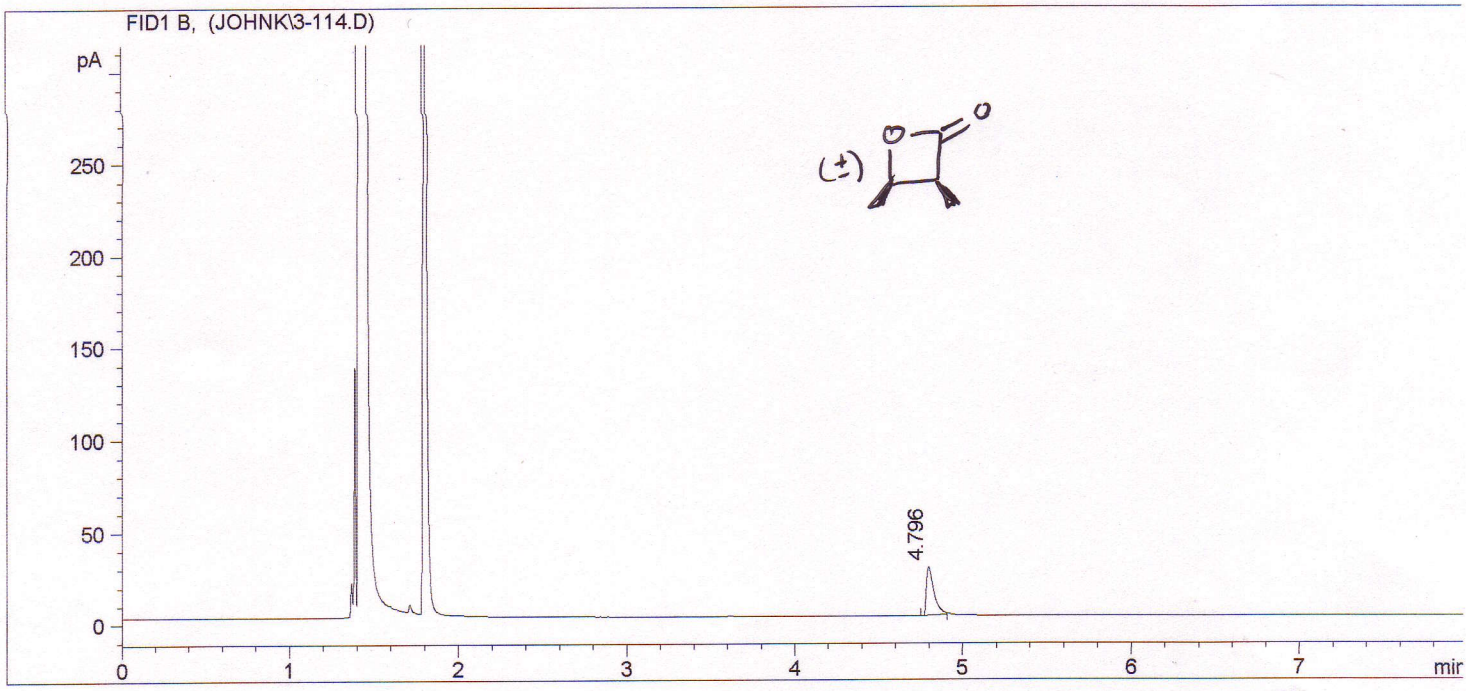
Signal 1:FID1 B,

Peak #	RT [min]	Type	Width [min]	Area [pA*s]	Area %	Name
1	9.228	PB	0.0349	155.095	100.00	

trans 2-butene oxide to lactone in DME at 100 psi CO

==========

Acq. Method : TLC_IR2.M
Method Profile:



Signal 1:FID1 B,

Peak #	RT [min]	Type	Width [min]	Area [pA*s]	Area %	Name
1	4.796	PB	0.0462	80.839	100.00	