

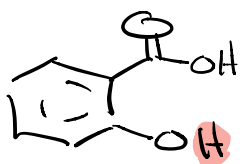
Characterization of Acetylsalicylic Acid

MP

FeCl_3

FTIR

Melting Point

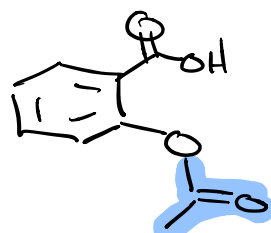
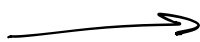


Salicylic Acid

IMF = H-bonding

\uparrow MP \propto IMF \uparrow

MP = 158 - 159 °C



Acetylsalicylic Acid

IMF = H-bonding

Higher Mass

\uparrow MP \propto mass \uparrow

$\text{C}_2\text{H}_2\text{O}$ increase 3eq/mol

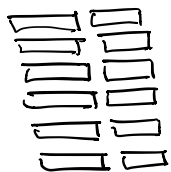
MP = 134 - 135 °C

low MP

loss in H-bonding
results in lower MP

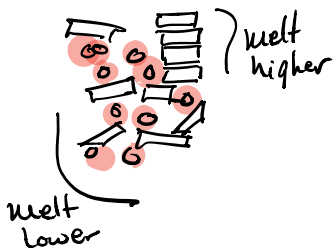
Impurity in mp

Pure

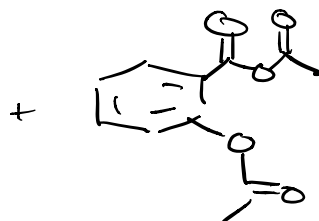
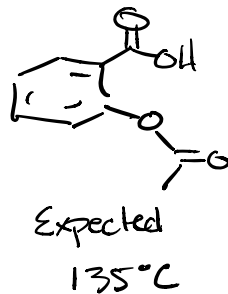
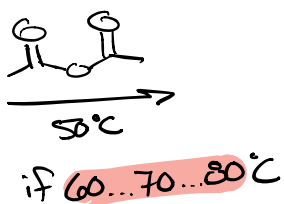
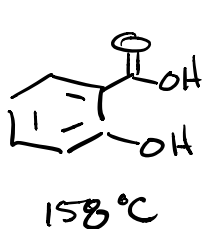


High & sharp

Impure



Broad range overall depressed



Possible w/ over heating

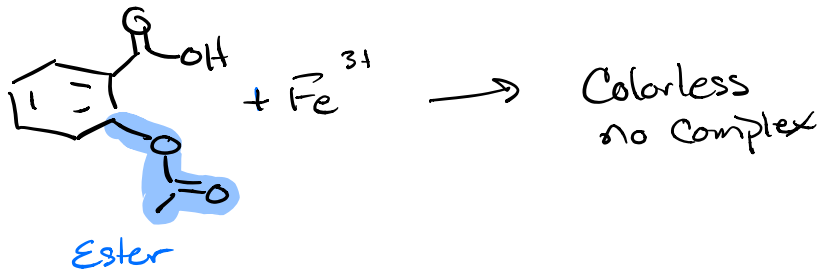
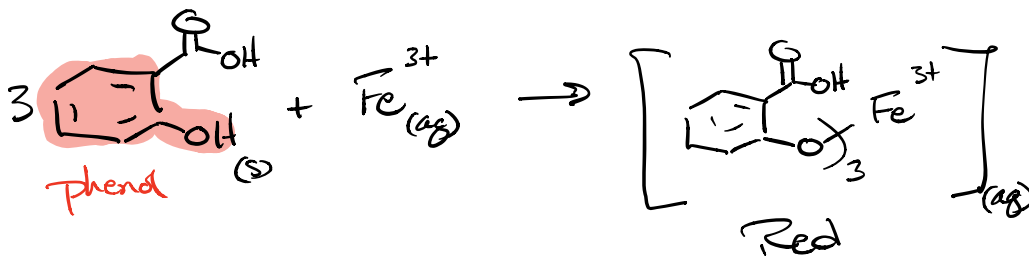
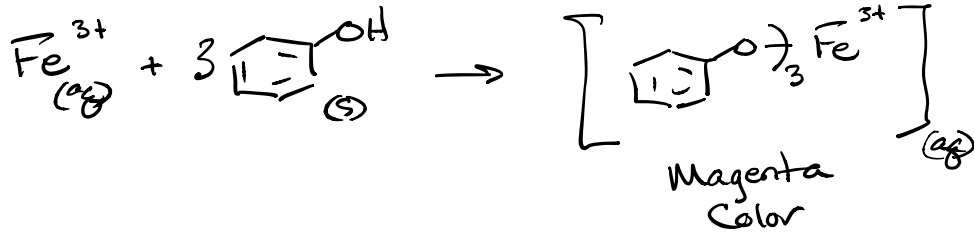
?
no - H-bonding
dipole-dipole
mp decreases
Substantially ↓↓

Ferric Chloride Test

Colorimetric test

$FeCl_3(aq)$ Iron(III) Chloride

Fe^{2+} ferrous
 Fe^{3+} ferric



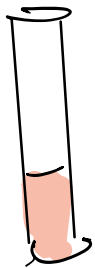
Outcomes

Product + $FeCl_3$

Small amount



no phenol

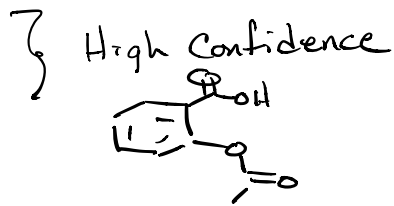


Positive for some phenol

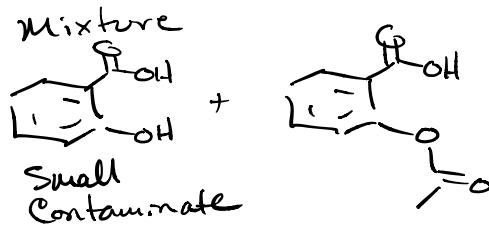


Super positive mostly phenol

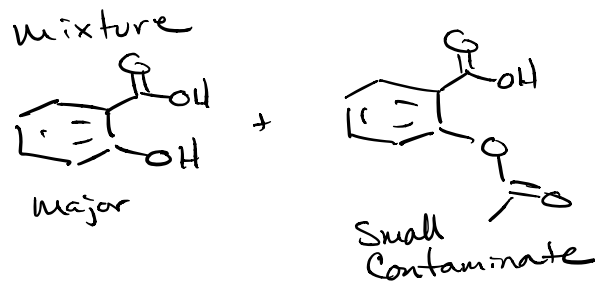
MP 135°C
FeCl₃ Clear & yellow

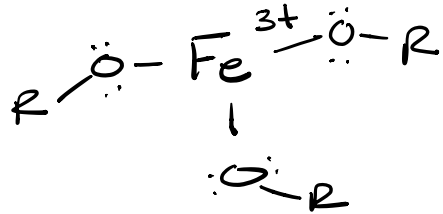
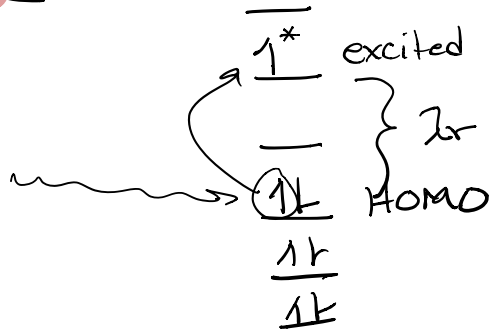
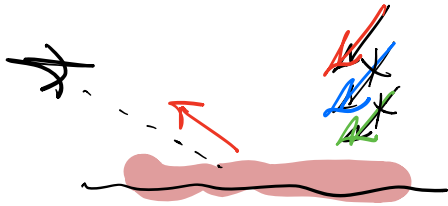


MP 128-134
FeCl₃ Some red
tinge

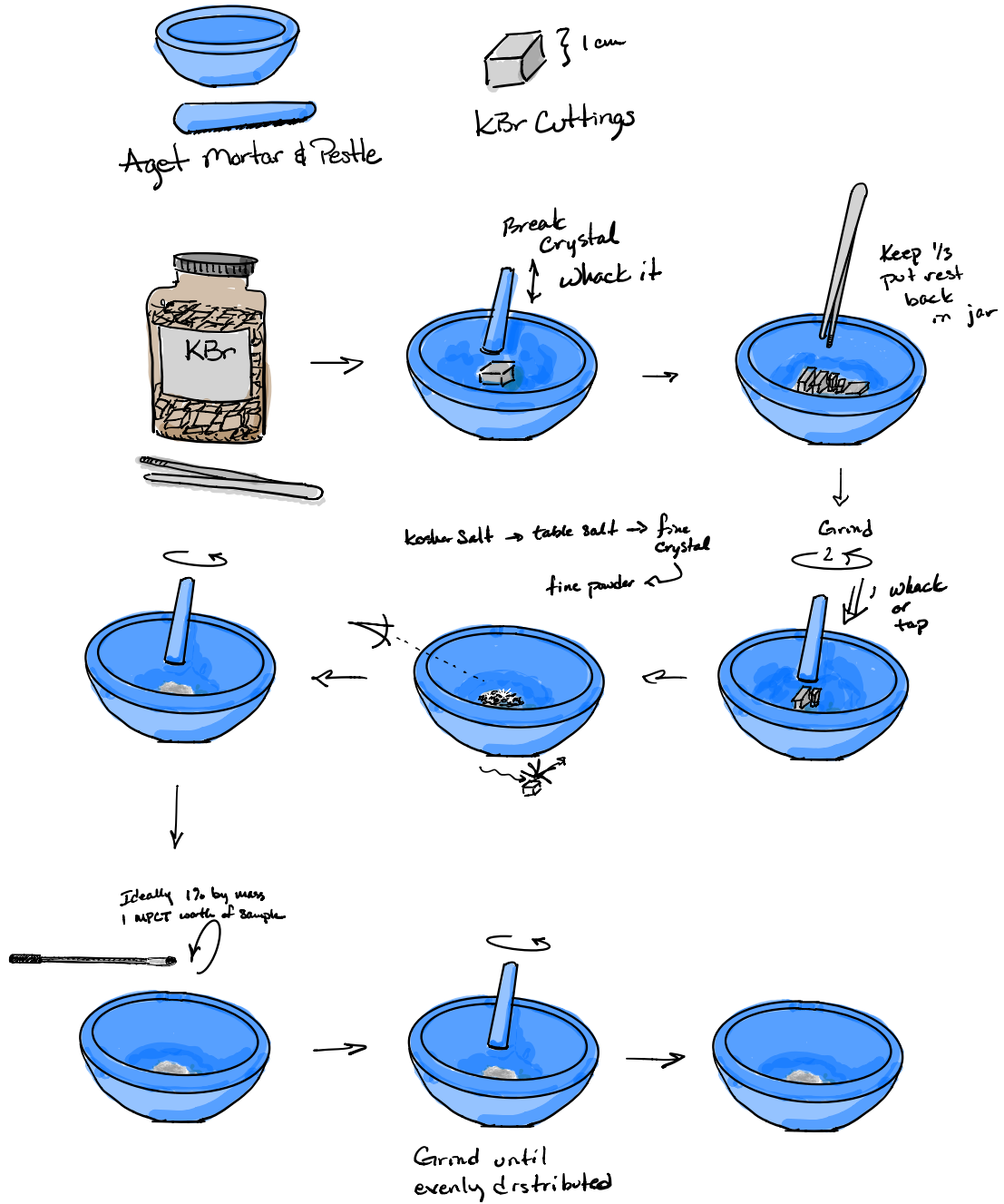


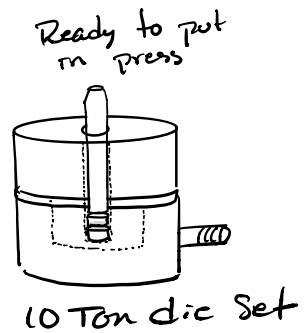
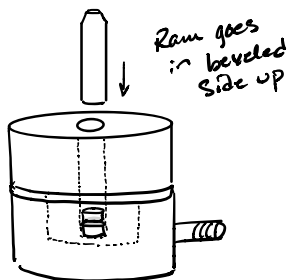
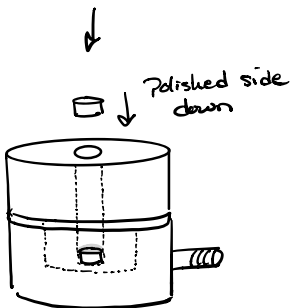
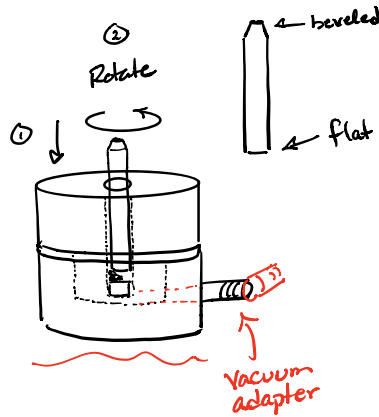
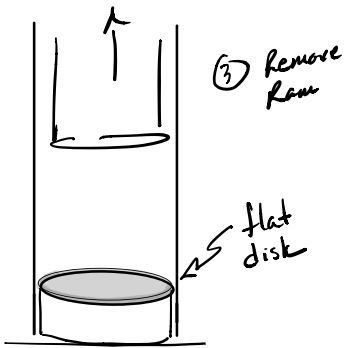
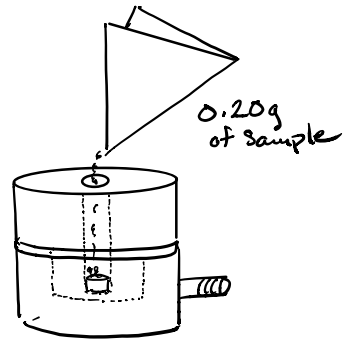
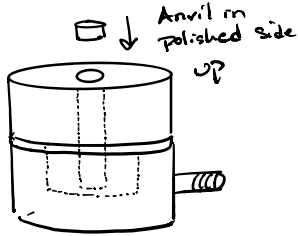
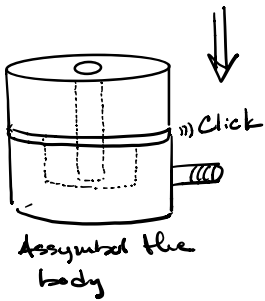
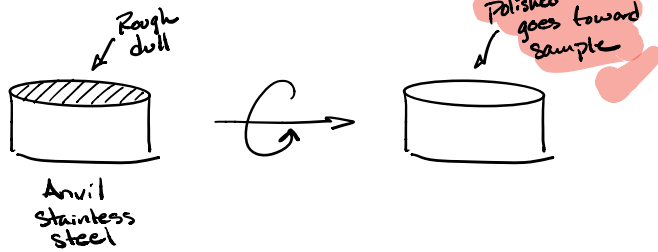
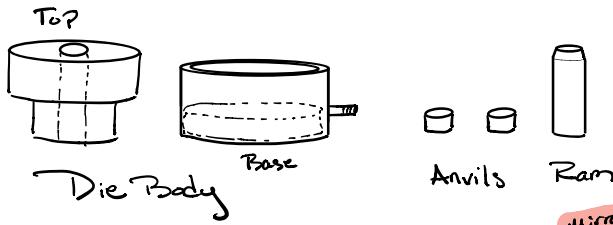
MP 142-154
FeCl₃ Bright Red

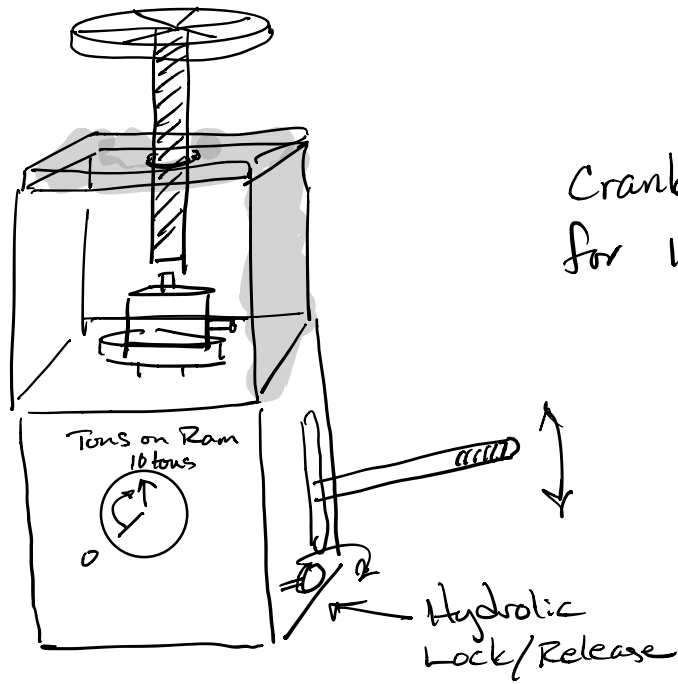




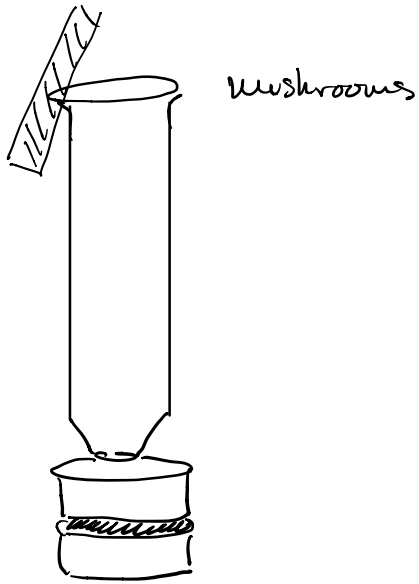
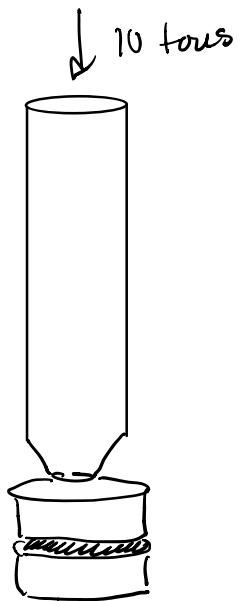
Solid KBr Pellet

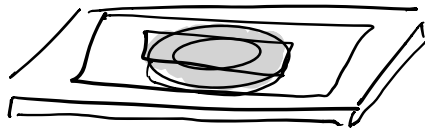






Crank up to 10 tons
for 1-2 min



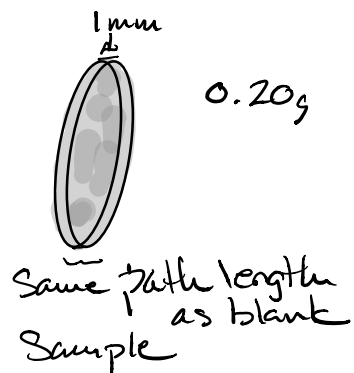
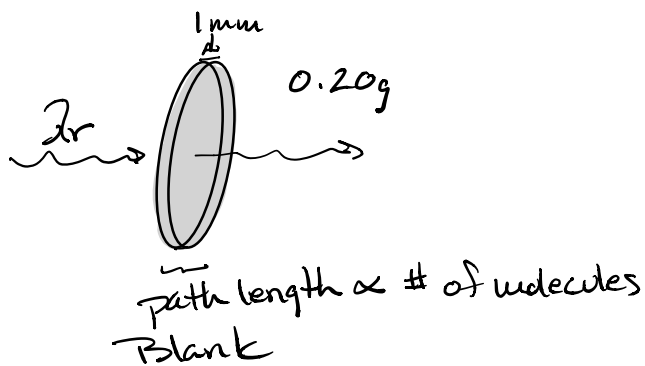


1st Person to make KBr pellet

⇒ Grind slightly more $\frac{1}{3}$ pellet
like $\frac{1}{2}$ pellet

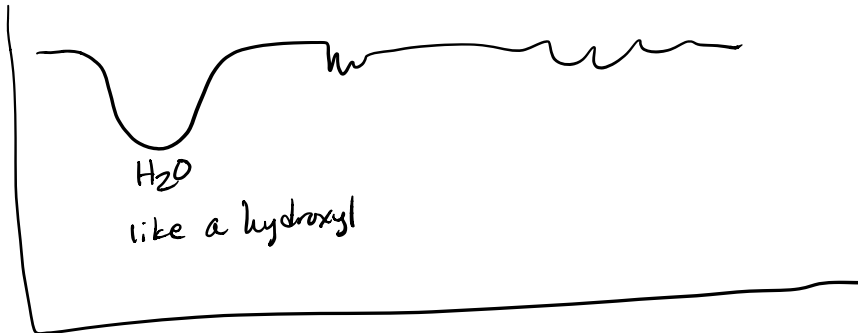
⇒ once KBr is ground then make
blank of 0.20g

⇒ Reserve the remaining KBr &
add sample to make sample pellet

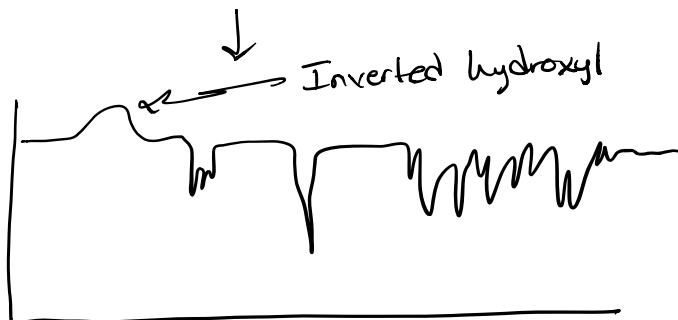
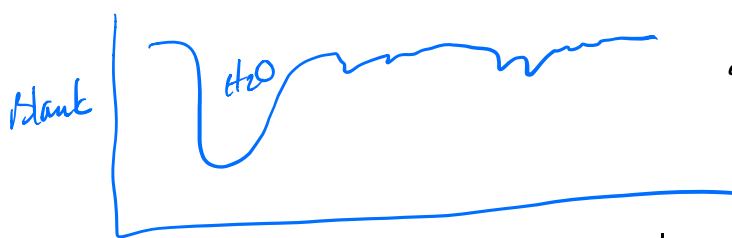
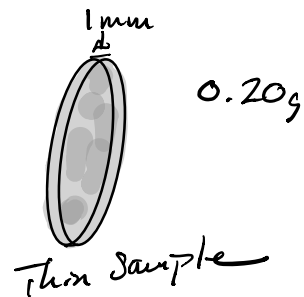
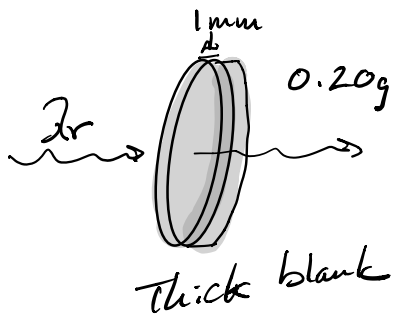


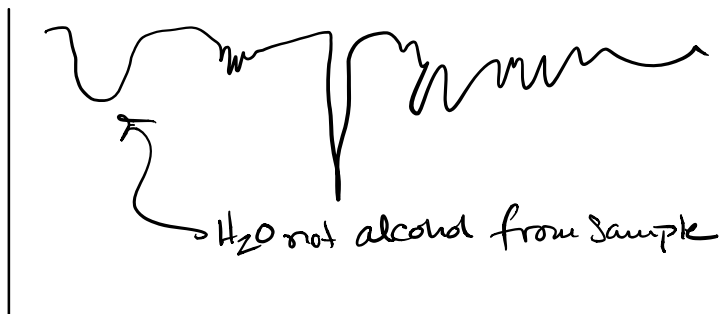
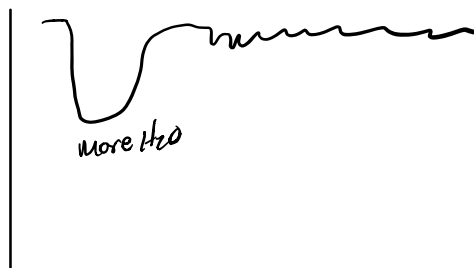
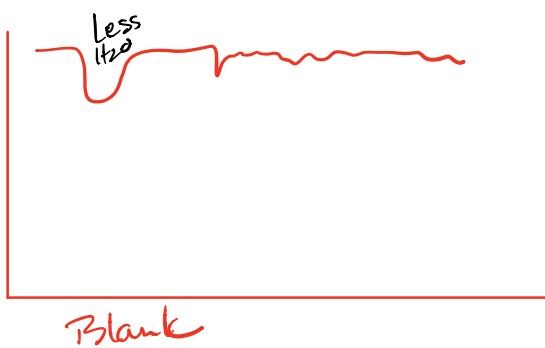
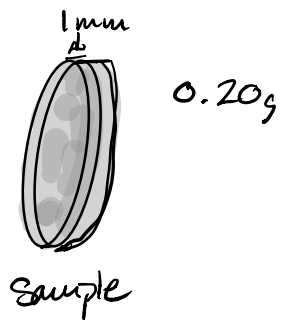
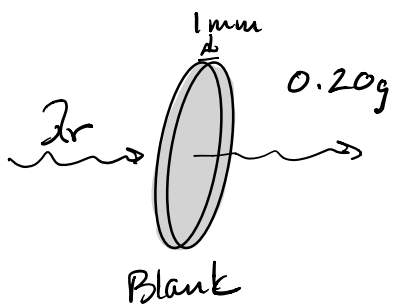
Water & CO₂

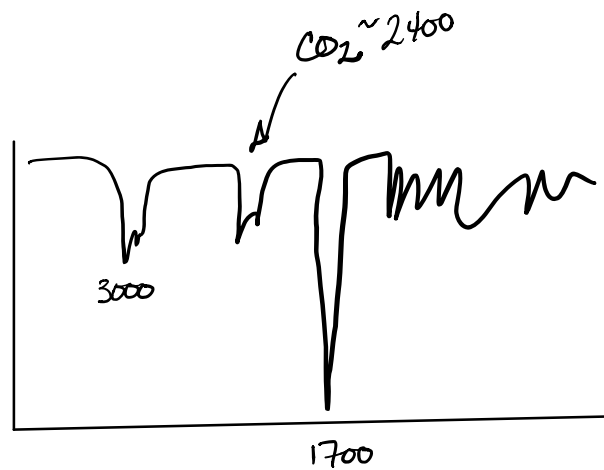
H₂O



Blank is too big \Rightarrow too long path length



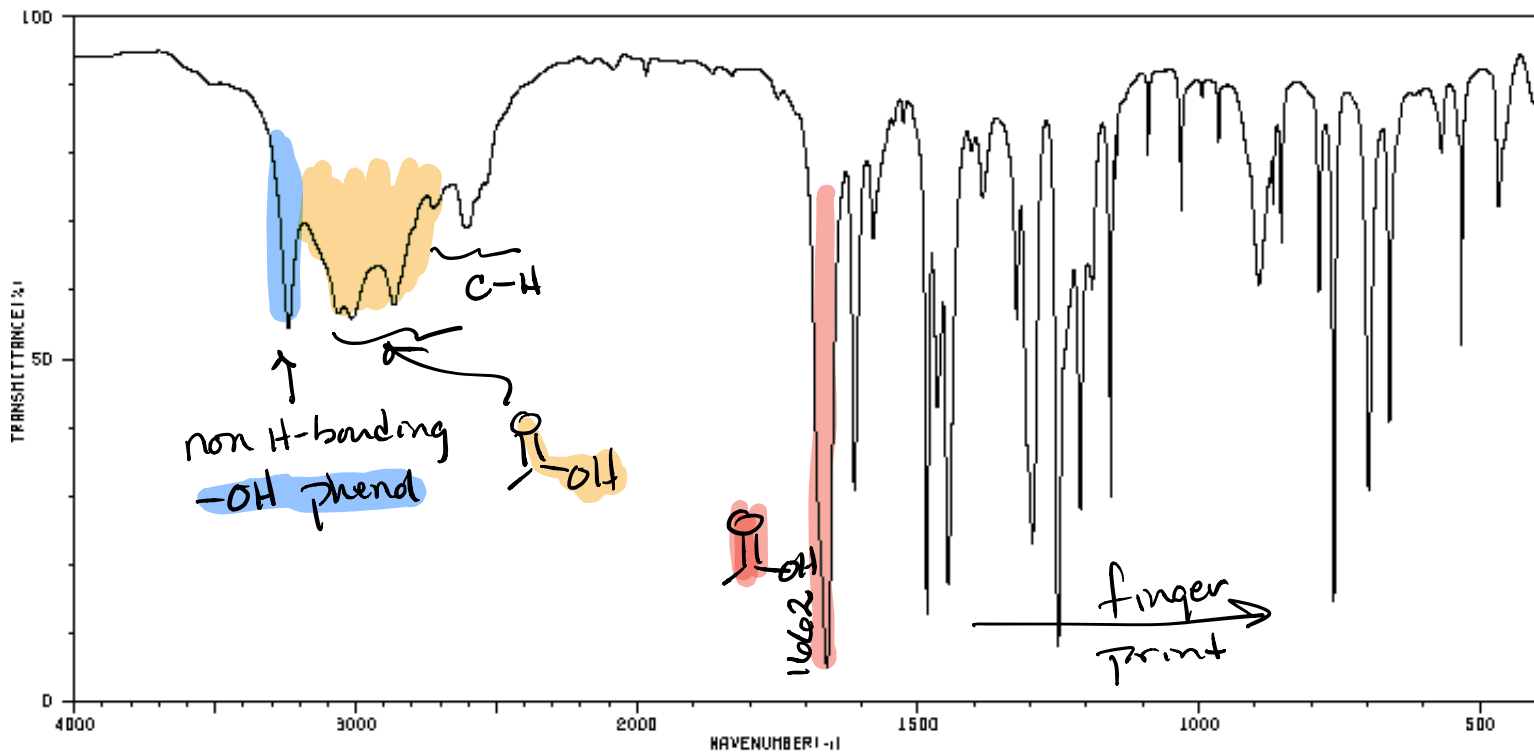




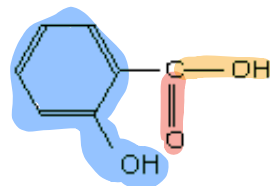
- ① Keep face away from sample while Grinding
- ② watch for CO_2 in spectrum

SALICYLIC ACID

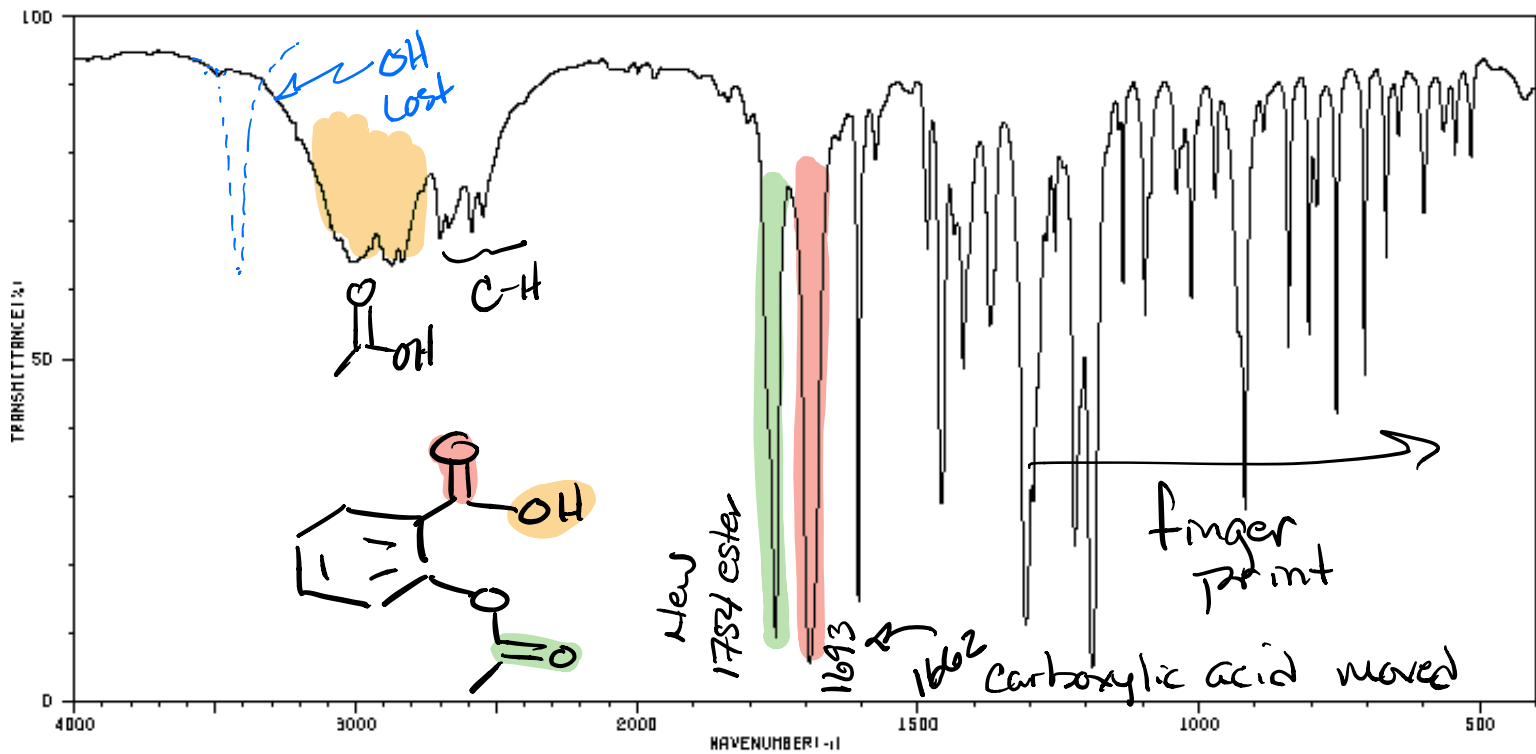
C₇H₆O₃



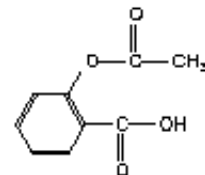
3240	62	1680	64	1326	63	1161	72	786	67
3013	53	1527	81	1297	21	1091	77	760	13
2864	55	1484	12	1251	7	1032	68	699	29
2724	70	1467	41	1239	49	966	79	661	38
2605	66	1447	16	1212	26	893	58	569	77
1862	4	1405	77	1190	58	868	70	533	50
1613	29	1386	70	1167	28	863	64	467	70

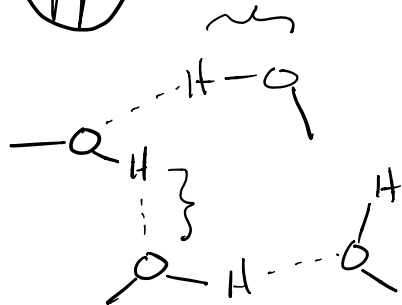
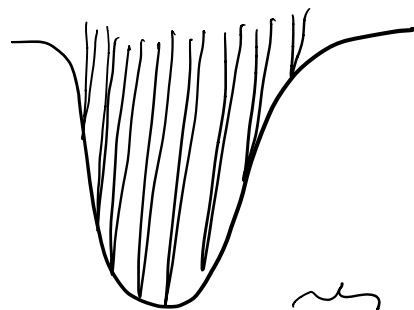


O-ACETOXYBENZOIC ACID
Acetylsalicylic Acid
 $C_9H_8O_4$

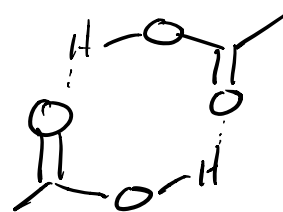
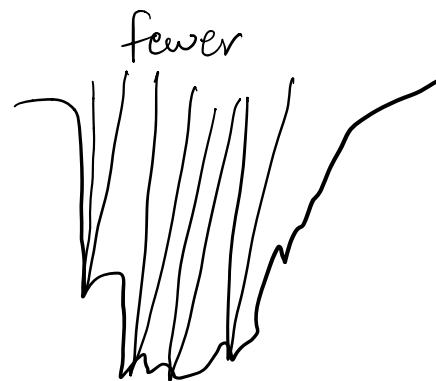


3006	62	2589	66	1436	66	1222	21	918	26
2983	62	2548	68	1420	47	1190	4	841	50
2891	62	1754	9	1372	53	1136	58	805	52
2872	62	1693	6	1308	10	1096	66	766	41
2834	62	1606	14	1295	28	1014	57	706	46
2701	66	1483	64	1272	64	971	70	667	62
2670	66	1469	27	1257	64	928	62	600	68





matrix



dimer