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LabChemistry_IS2_20160309_Camera2_Seg02.pdf

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Participants: IS2 (ITA, white lab coat), S1 (female student), S2 (female student), S3 (female student), S4 (female student), S5 (male student), S6 (male student), S7 (female student, floral hijab), U1 (UGTA, girl, long blue skirt), S9 (female student), U2 (UGTA, boy, dark clothing), S11 (male student, very tall, shaved head), S12 (female student), S13 (female student), S14 (female student), S15 (female student, dark high ponytail), S16 (female student, wavy brown hair in ponytail), S17 (male student), S18 (female student), S19 (male student), S20 (female student), S21 (female student), S22 (male student), S23 (female student), S24 (male student), S25 (female student), S26 (male student), S27 (male student), S28 (female student, black hair & plaid scarf), S29 (female student, polka dotted shirt), S30 (male student), S31 (female student), S32 (male student), S33 (female student), S34 (female student), S35 (female student), S36 (male student), S37 (male student, big & tall with blond hair and beard), S38 (female student), S39 (male student), S40 (male student), S41 (female student), S42 (male student), S43 (female student), S44 (male student), S45 (female student, dark hair in ponytail w/ orange ponytail holder)

Context: IS2 walks around helping students with their chemistry lab.

0:00	
XXX	((audio is bad quality))
0:55	
xxx S1:	we just the- we just need the TLC [plate.
xxx IS2:	[plate.
XXX	oh okay.
XXX	they just need to ((undecipherable)) spot for the crystals.
xxx S1:	(oh so) they don't need to ((undecipherable))?
xxx IS2:	oh okay.
XXX	((pause))
XXX	I-uh:
1:06	
XXX	((audio is bad quality))
1:26	
xxx S2:	because I made (er) in the wrong way
XXX	I made (er) in (east).
xxx IS2:	okay so ((laugh))
xxx S2:	((laughs))
xxx IS2:	okay that's fine so:

[I will con- i- I will continue with my [((undecipherable)) xxx S2: xxx IS2: [but you sh-youyouyou finished the part A already XXX just the measuring right? XXX xxx S2: yeah. xxx IS2: okay. XXX so (.) it's fine and uh: my suggestion is (.) set up your reaction? XXX oh: xxx S2: xxx IS2: first? xxx S2: okay. xxx IS2: for the part b? xxx S2: [((undecipherable)) xxx IS2: [so do the-the calculation and measuring you can do after xxx you [finish the part B. xxx S2: [oh ok. xxx IS2: because part b you need to uh: forty minutes. xxs S2: okay ((undecipherable)) xxx IS2: okay? xxx S2: thank you. xxx IS2: yeah. 1:57 XXX ((audio is bad quality)) 3:04 xxx S3: um what solvent [(are we gonna use) for (.) part b, CLF IS2: [for this? uh (.) what? CLF CLF sorry. xxx S3: the-for the chromatography plate? what solvent is it XXX in the chamber? XXX xxx IS2: uh:: for part b? XXX xxx S3: yeah. xxx IS2: uh three to one ratio? (hexene is in it)? XXX xxx S3: [okay okay. xxx IS2: [so after you-XXX you have the [TLC plate xxx S3: [three to one? xxx IS2: three to one ratio. xxx S3: okay. xxx IS2: so you need to change your solvent

```
okay yep thank you.
xxx S3:
XXX
          ((pause))
xxx S4:
         [uh:
xxx IS2: [(yeah)
CLF S4: bromine fell on my gloves so I washed it off
         ((undecipherable))
CLF
CLF IS2:
          did you get the bromine solution already?
CLF S4:
          yeah it just [fell on m-.
                      [oh you don't need to wash it.
xxx IS2:
xxx S4: oh on my- from my glove?
CLF IS2: no.
xxx S4: okay.
XXX
         ((pause))
xxx IS2: huh
xxx S5: so does it really matter how I uh- how I wrote this
xxx IS2: I mean
XXX
        it's not equi-e-equidistant right?
xxx S5: oh.
xxx IS2: right?
xxx S5: so [I-
xxx IS2:
             [so that that's what it probably is right?
xxx S5: uh huh.
xxx IS2: it doesn't matter.
xxx S5: it doesn't matter [right
xxx IS2:
                          [it doesn't matter.
        just make sure
XXX
        uh don't overlap.
XXX
         [uh: six point
XXX
xxx S5: [yeah yeah yeah okay.
xxx IS2: because you have extra [distant
xxx S5:
                               [yeah.
xxx IS2: right here you don't use this one so
        make sure your spot is very small?
XXX
xxx S5: mhm.
xxx IS2: n- every spot don't overlap them.
xxx S5: oh okay.
xxx IS2: yeah.
         that's a:ll you need to pay attention [to.
XXX
xxx S5:
                                              [okay
xxx IS2: so: distances doesn't matter.
xxx S5: okay.
xxx IS2: okay?
xxx S5: thanks.
4:18
```

((pause)) XXX 4:35 xxx IS2: uh: xxx (so) spot is, xxx S6: I didn't spot yet. xxx IS2: okay ((undecipherable)) just make sure uh: XXX this is one centimeter right? XXX xxx S6: yeah. xxx IS2: okay. ((pause)) XXX xxx S7: do you have extra dimethyl- ((mic cuts out)) xxx IS2: you used all of them? xxx S7: someone needed it xxx someone else needed it. xxx IS2: oh you don't know where yours is right? xxx S7: yeah they took it to a different bench. XXX xxx U1: what happened? xxx IS2: [uh: she didn't know the:-]
xxx S7: [the dimethyl fumarate?] xxx U1: [oh it's-it's in the 1 xxx IS2: [where the: dimethyl fumarate is.] xxx S7: [oh it's in the hoods? xxx U1: [where the UV (lights) are. xxx S7: (okay). xxx U1: uh no it's in the hoods. xxx S7: okay right. 5:09 XXX ((audio is bad quality; no full exchanges)) 6:24 xxx IS2: if you want to: double check you can check with the UV light. XXX xxx S9: okay xxx IS2: okay XXX because-because uh because you have ten minutes to ((mic cuts out)) XXX so you can check with the UV light XXX xxx S9: okay got it. xxx IS2: make sure you haveif you don't have do it- do it again. XXX ((pause)) XXX xxx U1: how's everyone doing xxx IS2: uh I think it's (good)

```
xxx U1:
          it's going well [right
xxx IS2:
                         [yeah
xxx U1:
          I (know) people are going fast
xxx U2: [yeah people are going ((undecipherable))
xxx IS2: [((undecipherable))
xxx S9: it's an easy-it-it's an easy lab that's why
xxx U2: I don't know [how the other people finished so late like
xxx IS2: [yeah yeah yeah
xxx U2: all [(these students) are good
xxx IS2:
              [h- so: how about the: last semester?
xxx for this one
xxx U2: it was- [it was okay
xxx IS2:
                  [((undecipherable))
                  [it was-yeah it was very much the same
xxx U1:
xxx U2: oh guys (were you) guys in the same lab?
xxx U1:
        no
xxx IS2: no [no no no
xxx U1:
             [no we were at the same time,
         [but he was in the other lab
XXX
xxx U2: [((undecipherable)).
xxx IS2: yeah [yes.
xxx U2:
               [okay right.
xxx IS2: I think it's fun it-it's-it's very
XXX
         [fast
xxx U1: [I like this lab!
xxx U2: [yeah our- our students are really great.
xxx IS2: yeah yeah yeah.
xxx U1: I think [((undecipherable)) labs.
xxx IS2:
                 [high- high quality.
xxx U2: high quality? ((laughing))
xxx IS2: ((laughing))
XXX U1: this-this and ((undecipherable)) are my favorite labs.
xxx U2: really?
xxx U1: yeah.
xxx U2: I think my favorite is
xxx IS2: ((student calls him over))
XXX
        sure.
xxx S11: ((undecipherable)) is mine- is this considered
xxx in the spot?
xxx or not
xxx IS2: there's no spot right?
xxx S11: [(really)?
xxx IS2: [I can't see- I can't see the spot
xxx S11: [oh.
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```
xxx IS2: [it's not very obvious.
xxx S11: okay.
xxx IS2: so [uh:
xxx S11: [(just) do it again
xxx IS2: y-y-you just spot for the standard right?
xxx S11: yep.
xxx IS2: okay now- so you need to do
xxx n-uh:
xxx S11: just (spot) it again?
xxx IS2: one-one time.
xxx S11: [(mhm).]
xxx IS2: [again.]
xxx S11: [okay.
                               1
xxx IS2: [so yeah y-you're right]
xxx so: before you got uh:
XXX
        the following [so:
xxx S11:
                      [yep
xxx IS2: double check whether you have
        if you don't have
XXX
        do it again, and also
XXX
        and uh for the t-
XXX
        and for the zero minute and for two minute
XXX
xxx S11: mhm
xxx IS2: so:
xxx S11: keep on checking?
xxx IS2: check it again.
xxx S11: okay.
xxx IS2: before you put it in the chamber.
xxx S11: mhm.
xxx ((pause))
xxx IS2: no
        using the-that one okay
XXX
        ((pause))
XXX
CLF S12: (do I just) spot them both and then- no
CLF
         ((pause))
CLF IS2: what?
XXX
        sorry
XXX
         ((undecipherable)) switch?
xxx S12: (I just) switch them
xxx IS2: uh- I think- if you have the:
xxx S12: (I could just move it)
xxx IS2: yeah you can move it, and yeah
        you can s- they have the equal size
XXX
        so i-
XXX
```

```
uh this is smaller right
XXX
xxx S12: yeah.
xxx IS2: this is smaller yeah.
xxx you need to,
xxx S12: move it?
xxx IS2: switch-yeah switch it.
XXX
         ((pause))
         so this is a two minutes or ten?
XXX
xxx S13: ten.
xxx IS2: ten minutes.
xxx S13: mhm.
xxx IS2: okay.
        so uh:
XXX
9:00
         so- y-you can see the
XXX
          uh solvent come out from your TLC plate.
XXX
XXX
          uh come out from the micropipette to your:
XXX
          uh: TLC plate right?
xxx S13: mhm.
xxx IS2: yeah just uh: because uh if you
        not-not quite sure you can check with a UV light.
XXX
         make sure you have the spot um for the
XXX
         two minutes, and for ten minutes,
XXX
xxx S13: yeah I can see them.
xxx IS2: you can see them.
         okay that's fine.
XXX
         ((pause))
XXX
          so-
XXX
         m-mix them.
XXX
          so:
XXX
          you don't (act) with bromine solvent solution right?
XXX
          just- to-
XXX
          so yeah just swirl for-for maybe four minutes?
XXX
xxx S14: okay.
xxx IS2: and spot for the ten- uh for the zero minute.
xxx S14: okay.
xxx IS2: okay?
          so: you can check with the u light
XXX
          when-just make sure you have the spot on the:
XXX
xxx S14: yeah.
xxx IS2: TLC plate.
xxx S14: I have to do the fumarate but then i'll do-
xxx IS2: okay so:
         ((undecipherable)) (solution) inside it.
XXX
```

okay? XXX xxx S14: yes that's ((undecipherable)) XXX ((pause)) xxx IS2: so far so good? xxx S15: yep so far so good. xxx IS2: so: xxx did y-((undecipherable)) did you finish? xxx S15: I just did the ten minute and now I'm gonna wait another xxx minutexxx IS2: okay. xxx S15: um ten minutes for the twenty minute? xxx IS2: okay. xxx so you are waiting for ten minute right now? xxx S15: yeah. xxx IS2: okay so: u:m xxx for the-uh- how do you spot for the zero minute, xxx S15: the zero, I just- I spotted that before the brom-I added the XXX XXX bromine. xxx IS2: before you add bromine. xxx S15: yeah before [that. xxx IS2: [alright correct. xxx S7: so we go to the hood add in the t-uh the bromine wait two xxx minutes and then put it on right, XXX xxx IS2: so did you- uh: CLF [spot for the (zero) minute? xxx S7: [spot it? yeah. yeah. XXX xxx IS2: okay. xxx so okay just uh go to the hood? XXX XXX add the bromine solution inside it? xxx S7: mhm. xxx and t and then wait [until you xxx S7: [(twenty) minutes xxx IS2: (twenty) minutes? xxx S7: okay. XXX thank you. xxx IS2: sure. xxx ((pause)) xxx so: this is standard right xxx S16: mhm xxx IS2: okay xxx S16: so [this is ((undecipherable))

```
xxx IS2:
             [uh:
xxx S16:
          and then (on minute) ((mic cuts out))
         ((undecipherable))
XXX
xxx IS2: ((undecipherable)) okay okay
        so before you add the bromine solution inside it,
XXX
          so: that it-th-that mixture is for the: z-zero minute
XXX
xxx S16:
         ((nods))
xxx IS2: because the ((mic cuts out)) right?
xxx S16: ((undecipherable)) in the second (.) two (minutes)
xxx IS2: two is after you bromine- you add bromine solution
xxx S16: ((nods))
xxx IS2: and you need to wait two minutes.
         that's the two minutes.
XXX
          so (zero) minutes is before you add the bromine [solution.
XXX
xxx S16:
                                                         [yeah-
        is it okay if I didn't-I put the um
XXX
xxx IS2: acyl acetate?
xxx S16: yeah.
xxx IS2: for the part A right?
xxx S16: yeah.
xxx IS2: you can use this.
xxx S16: I can still use it?
xxx IS2: ves.
xxx S16: cause I know [I can't clean it
                       [yes as long as it is-
xxx IS2:
XXX
     [so-
xxx S16: [so I can use it for the-
xxx IS2: (if it is strong) you can use this
xxx S16: d-dimethyl ((undecipherable))
xxx IS2: sure sure sure sure sure.
xxx S16: oh okay.
          thank you.
XXX
xxx IS2:
          yep.
11:55
XXX
          ((pause))
12:20
xxx S17: excuse me.
xxx IS2: yeah.
xxx S17: we have to make an ice bath [later on
xxx IS2:
                                     [yes.
xxx S17: u:m is there ice for it?
xxx IS2: oh okay (sorry) I can get for you.
         ((pause))
XXX
         sorry uh: which room?
XXX
```

12:37 XXX ((pause)) 12:59 INT IS2: ((undecipherable)) I can get some ice um xxx S18: ((undecipherable)) ice? xxx IS2: yeah yeah yes. ((pauses, IS2 goes out of room to get ice for a student)) XXX ((undecipherable)) ice bath XXX 13:05 ((pause)) XXX 15:23 xxx U2: one uh: ta he's never TAed a lab but he's a PhD chemistry student? XXX uh his name is Jay Son? XXX xxx U1: [like-] xxx IS2: [Jay: Son?] xxx U2: [Jay: Son.] xxx U1: [Jason but like ((undecipherable)) xxx IS2: [which year? xxx U2: ((undecipherable)) yeah yeah I'm not joking. XXX xxx IS2: [uhxxx U2: [I used to call him Jason but then like [((undecipherable)) [Jason? xxx IS2: xxx U2: yeah xxx IS2: Jason. ((undecipherable)) XXX Jason is his English name I think so. XXX xxx U2: yeah yeah yeah. um XXX xxx U1: it's Jay: So:n. xxx U2: but-but yeah it's Jay Son. xxx IS2: sh-uh: he's- uh: also a TA but not for organic lab? xxx U2: yeah for gen chem lab? xxx IS2: for gen chem lab? xxx U2: I think so= xxx IS2: =first year graduate student? xxx U2: no he's not first year. xxx IS2: [not first year. xxx U2: [he's- I think he's third year now. xxx IS2: third year? I-I don't know. XXX XXX I don't know him. xxx U2: oh okay.

xxx IS2: sorry. 15:59 XXX ((pause)) 16:22 xxx S18: (it) doesn't matter what we cool the hexene in right? XXX test tube is fine? CLF IS2: uh should be very cold. CLF S18: yeah but i-i-it doesn't matter (what we cool) it in? CLF like- it doesn't matter what we put it ((mic cuts out)) XXX we're not putting the hexane directly into-XXX we're-we're putting the-the XXX [hexane in a test tube and then, XXX CLF IS2: [you-you need to- you-CLF S18: putting the test tube in the ice water bath? xxx IS2: so: lemme check- n: so where's the ace-uh where's the hexane? XXX xxx S18: hexane is [((undecipherable)) xxx IS2: [((undecipherable)) hexane right now, and make it- just make uh cold hexane right, XXX XXX [a:nd uh xxx S18: [can-can I put it in a test tube and then put the test tube XXX in this? xxx IS2: sure. xxx S18: okay. CLF IS2: bu:t the thing is uh: CLF you see? CLF m:: CLF so: xxx S18: er:: uh XXX here? CLF IS2: here so: you add co-cold hexane to the mixture? ((undecipherable)) until crystals appear. XXX xxx S18: okay. xxx IS2: so that's when you need to cold hexane. xxx S18: okay xxx IS2: so the:n after you you need to wash the crystal with cold hexane again? XXX SO XXX XXX this is where you need to (.) cold hexane. xxx S18: okay. xxx IS2: yeah. xxx S18: so we're not using the whole seven milliliters uh we're just dr-putting it until th-we see the crystals? XXX

```
and then using [the rest-
XXX
CLF IS2:
                         [I think-
         ten mil is-is good.
CLF
CLF
        because I think-
CLF S18: ten?
xxx IS2: yeah seven is not quite enough.
xxx S18: okay.
xxx IS2: yeah.
         yeah.
XXX
17:46
XXX
          ((audio is too spotty to hear a complete exchange))
18:23
xxx IS2: uh three times yes.
XXX
        so y-uh:
XXX
         it depends o:n-↓
         anyway you need to check the with the UV light.
XXX
          after you go three times.
XXX
          because sometimes three times it not- is not enough too
XXX
XXX
          so:
          just check the UV light.
XXX
          but make sure you have the spot for the standard?
XXX
         so it-it's same for the-for the part A right?
XXX
xxx S19: for-yeah.
xxx IS2: for every spot.
         just- before you put this plate on the TLC chamber?
XXX
xxx S19: yeah.
xxx IS2:
         (make sure) you have all this plate.
          all this spot.
XXX
18:47
          ((audio too spotty to hear complete exchange))
XXX
19:12
          get some of-get some for the two minutes.
XXX
          and after ten minutes, get some for ten minutes.
XXX
          and get-(others-twenty min-uh-two-twenty minutes
XXX
xxx S19: okay.
xxx IS2: (for twenty minutes)
xxx S19: okay.
xxx IS2: okay?
xxx S19: (well) standard is fumarate?
xxx this is for zero and then
xxx IS2: you got it.
xxx S19: okay.
xxx ((pause))
xxx IS2: it's good?
```

xxx S20: yeah. xxx IS2: ((laugh)) ((undecipherable)) spot for the zero minute already? XXX xxx S21: yeah. xxx IS2: the solution? xxx S21: yeah. xxx IS2: and you can prepare bromine solut-bromine solution? xxx S21: bromine solution a:nd when do I start timing? after I add [bromine XXX [after you add ((undecipherable)) xxx IS2: xxx S21: and I ((undecipherable)) xxx IS2: ((undecipherable)) it uh- before you (swirl) do-XXX after you add the bromine solution? XXX XXX in the time right now xxx S21: and after [two minutes I spot it xxx IS2: [two minutes? spot it for the: two minutes. XXX ten minutes, for ten minutes XXX xxx S21: okay thank you. xxx IS2: yeah. 20:06 XXX ((audio too spotty to hear complete exchange)) 24:22 xxx IS2: so uh: my suggestion is (.) uh: ((clears throat)) XXX you can uh: drop a little bit XXX (this water), and the-XXX xxx S22: ((undecipherable))? xxx IS2: yeah. ((pause)) XXX oh you guys are s:o f:ast. XXX xxx S23: [oh. [uh- you finish the twenty minutes already? XXX xxx S23: yeah. xxx IS2: uh: did you check the uv light fo:r the first five spot? XXX xxx S23: yeah. xxx IS2: y-you got (.) five, xxx S23: ((undecipherable)) XXX you have five spot right? xxx S23: um xxx IS2: uh: ((undecipherable)) uh sorry uh: you can ((undecipherable)) XXX

xxx S23: the glove? xxx IS2: gloves already? yeah. XXX oh- I mean- just make sure you- the first five spot XXX because XXX ((mic cuts out)) XXX ((undecipherable)) don't have five how do- how do you run XXX the TLC right? XXX xxx S23: okay. xxx IS2: just make sure you have before you put it in the: chamber ((pause)) XXX XXX because i-if you don't ha:ve for any of them and-(do you) [spot? XXX xxx S23: [I think it got a little wet on the bottom. xxx IS2: uh: xxx S23: [is that ok? xxx IS2: [it's- is it water? xxx S23: no [(I don't know) xxx IS2: [I think so right it's not water so XXX it doesn't matter because (.) I think XXX we have [the ((undecipherable)) there XXX [I'll stop it there xxx S23: xxx IS2: don't let it xxx S23: ((undecipherable)) xxx IS2: you have right? xxx S23: we have it ((undecipherable)) xxx IS2: uh fine so just wait? XXX huh good job. ((pause)) XXX COM so far so good? COM S24: what? xxx IS2: ((clearer)) so far so good? xxx S24: yup. xxx IS2: so: xxx S24: ((undecipherable)) xxx cause I have to do my three to one [mixture. xxx IS2: [how's your reaction? oh you finished your reaction already? XXX xxx S24: no no I'm waiting for the last ten minutes. xxx IS2: uh: for last ten minutes? xxx S24: uh cause I did the-the two minute? xxx IS2: did you do the ((undecipherable)) xxx S24: ten minutes,

xxx IS2: you finished the ten minutes already? xxx S24: yeah. xxx IS2: so this is for the twenty minutes are you waiting? xxx S24: yeah [this is for the last ten minutes- twenty minutes one xxx IS2: [okay twenty minutes one so after that, XXX XXX [so: xxx S24: [I have to: do the crystals. xxx IS2: do the crystals yes. xxx S24: (cooling) hexane xxx IS2: oh xxx S24: for- we have to do a three to one mixture right? xxx IS2: three to one ratio yeah you need to change the s-solvent. xxx S24: yeah so we needxxx [do we still need ten millili-ten milliliters? xxx IS2: [(uh jus-) ten milliliter because (you need) uh: three to one ratio. XXX ten or uh: XXX I-I think ten is not quite good. XXX xxx S24: [yeah: ((undecipherable)) xxx IS2: [sorry uh just make sure you can calculate how much. XXX xxx S24: [okay. xxx IS2: [so: twelve is fine xxx S24: [yeah twelve ((undecipherable)) xxx IS2: [because twelve is easier for you to calculate right? xxx S24: okay yeah okay. 26:57 ((pause)) XXX 27:17 xxx IS2: so: xxx you- are you waiting for the ten minutes or twenty minutes xxx S7: twenty minutes. xxx IS2: twenty minutes right? xxx S7: yeah. xxx IS2: so: xxx S7: [I- I just did-xxx IS2: [you-you got ten minutes already right? xxx S7: yeah so I [waited ((undecipherable)) xxx IS2: [after- after ten minutes. xxx extra minutes. xxx S7: oh: okay. xxx IS2: okay? xxx S7: okay (thank you)

((pause)) XXX xxx S25: I added (.) some drops here? and now it saying to vacuum it? XXX xxx IS2: did you got crystals? xxx S25: I don't know. xxx IS2: oh you got crystals right here right? xxx S25: oh okay. xxx IS2: do you see it? xxx S25: (so can I) vacuum it now? xxx IS2: sure. xxx S25: do I put this on? xxx IS2: uh: ((undecipherable)) XXX yes. XXX a:ll the way. XXX (.2)XXX XXX all the way. because (.) if you don't get too, much (.) vacuum. XXX so if it-it-it becomes very slow if you do the vacuum XXX filtration. XXX xxx S25: so it's good now? XXX all the way? xxx IS2: all the way. yes. XXX 28:06 ((audio too spotty to hear whole exchange)) XXX 30:56 xxx U2: ho-how's it going (now)? xxx IS2: it's good. CLF U2: uh you're not getting a lot of theory questions are you? CLF IS2: theory question. CLF U2: yeah like about um CLF like how it works or anything? CLF IS2: you mean wh= CLF U2: =like the polarity and everything of the: plate?= CLF CLF IS2: =m-my-my-my-my exam? xxx U2: no no for f- like these students. like are they asking you any theory questions? XXX xxx IS2: no. xxx U2: oh okay [I didn't think so. [I think- I think they don't even care about this. xxx IS1: XXX ((U2 and IS2 laugh)) 31:19

((pause)) XXX 31:38 xxx IS2: hi uh: xxx where is the bromine solution? xxx S7: right here. XXX it was um xxx IS2: did you- did youxxx U1: it's after twenty minutes. xxx IS2: do the: zero minute already? xxx S7: huh? xxx IS2: zero minute? xxx S7: yeah I did all of that. xxx IS2: so: xxx U1: it's after twenty minutes xxx S7: yeah. xxx U1: it's supposed to turn (clear) cause we ((undecipherable)) xxx IS2: b- oh XXX [so after- after the ((undecipherable)) is complete. xxx U1: [(because) it's suppos xxx S7: yeah no I got scared . [(because) it's supposed to get light [cause I was like why-XXX xxx IS2: [oh xxx U1: [(it's fine) xxx IS2: no I-I-I just wondering if you don't uhwhether you add this bromine solution already XXX oh you add this XXX xxx S7: yeah I added it before [((undecipherable)) [uh this is clear y-y-yxxx IS2: xxx U1: [((undecipherable)) on ice xxx IS2: yeah yeah yeah xxx U1: (put it) on ice. xxx S7: oh uh before the twenty minutes? xxx IS2: [no no no xxx U1: [oh you're not done [yet oh: xxx S7: [yeah yeah I just have like two minutes left for the twenty minutes. XXX xxx IS2: that's right. xxx S7: ((undecipherable)) ice water. xxx U1: it's supposed to turn lighter xxx IS2: thenxxx U1: the-because (.) the: bromine reacts with the maleate and you get fumarate which is (.) also clear. XXX xxx IS2: ((nods)) 32:26

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((audio is bad quality, no complete exchanges))
XXX
33:51
xxx S26: yep [it's in there.
xxx IS2:
              [do you got crystals?
xxx S26: oh no it- i'm cooling them both right now.
        it said to wait ten or fifteen minutes.
XXX
xxx IS2: oh
     ten to: fifteen minutes right?
XXX
xxx S26: yeah yeah yeah.
xxx IS2: okay okay okay okay okay.
34:02
XXX
         ((pause))
34:19
xxx S27: so I just did my twenty.
xxx IS2: mhm.
xxx S27: so (I just did) my cold hexane.
xxx IS2: mhm.
xxx S27: just add three drops [(to it) till crystals form right?
xxx IS2:
                             [yes?
     yes (.) keep adding [until you've got crystals.
XXX
xxx S27:
                             [okay.
xxx IS2: so:
        it should uh: be:
XXX
XXX
         ((undecipherable)) but I don't think so just keep adding.
xxx S27: just keep adding?
xxx IS2: keep adding yes.
xxx you finish th-the [first five?
xxx S27:
                           [I finished the-yeah I finished all the
xxx ten-ten-ten twenty.
xxx IS2: ten twenty
xxx S27: yeah
xxx all the way up to twenty.
xxx IS2: okay [cool.
xxx S27: okay.
xxx IS2: mhm.
xxx S27: and now I just pour it in there
xxx IS2: yes.
xxx S27: to filter out
xxx IS2: yes and then co- and uh wash with cold hexane.
xxx S27: okay.
xxx IS2: yes
34:55
          ((pause))
XXX
36:50
```

```
xxx IS2: any questions?
xxx S28: u:m not really
xxx IS2: not really?
         okay
XXX
         oh just wait?
XXX
xxx S28: yeah.
xxx IS2: did you c- did you put the: c-cold hexane inside it?
xxx S28: yeah (I did).
xxx IS2: okay just waiting for the ten to:=
xxx S28: =yeah=
xxx IS2: =fifteen minutes?
xxx S28: yeah.
xxx IS2: okay so: after you've got crystals?
        a:nd uh
XXX
         do the filtration?
XXX
         and wash with cold hexane?
XXX
XXX
         that's it and uh you can (uh) done.
          and you don't need t-cause we don't need to connect the
XXX
         crystals.
XXX
xxx S28: mhm
COM IS2: you just need (.) to: get some of them,
COM
          and then dissolve in the: (.) methylene chloride,
COM
          and uh do the: TLC again?
COM
         for the last spot.
COM S28: oh- wait what?
        [could you repeat that?
COM
xxx IS2: [cause
          the-the last one is crystals (.) [right?
XXX
xxx S28:
                                          [yeah okay-
xxx IS2: crystals is what you got from here?
xxx S28: mhm.
xxx IS2: and the: after you've got crystals from the (vacuum).
        filtration and uh you get some them [and disso-get some
XXX
xxx S28:
                                             [((undecipherable))
xxx IS2: and you can use a small tube?
XXX
        and get some inside the small tube?
          and dissolve with a c- with a:-
XXX
XXX
         not-not hexene
xxx S28: the:
xxx IS2: the (.) methylene-methylene chloride [right?
xxx S28:
                                              [uh huh.
xxx IS2: and then do the spot [for the last one.
xxx S28:
                              [oh: okay.
xxx IS2: okay did you [understand yeah okay
```

```
xxx S28:
                       [(I got it yeah).
xxx S29: sorry
xxx IS2: yeah sure.
          ((pause))
XXX
          (this) crystal come out?
XXX
xxx S30: nope.
xxx IS2: ((laugh))
xxx S30: uh:
xxx IS2: just keep at it.
          ah-ah-I- my suggestion is you can put in-in the:
XXX
          in the-in the-in the- in ice bath.
XXX
          that should be much faster
XXX
xxx S30: okay.
         [I'll probably do that.
XXX
xxx IS2: [I mean- where is the ice bath?
xxx S30: uh someone (must have) borrowed it.
xxx IS2: okay you need uh:
          you can get a ice bath and uh swirl in the ice bath.
XXX
          okay?
XXX
38:22
          ((pause; mic cuts out))
XXX
38:45
xxx S31: okay I just did this part?
xxx IS2: uh huh
xxx S31: now do I put this in the thing
     or do I check under UV light?
XXX
xxx IS2: so: you do the-the last one already?
xxx S31: yeah.
xxx IS2: okay,
         so (.) uh: my suggestion is you can check all them?
XXX
          to see i-
XXX
xxx S31: they all- the first five did
         [((undecipherable))
XXX
         [the first five did.
xxx IS2:
XXX
          yeah (you too).
39:00
          if you- if you don't have- if you cannot see the last one,
XXX
          maybe your solution is-is dilute.
XXX
          you need to (.) spot more.
XXX
XXX
          ((pause))
xxx S32:
          ((undecipherable)) maybe one and a half milliliters of
         hexane- cold hexane so far?
XXX
xxx IS2: yep.
         no crystals right?
XXX
```

xxx S32: no crystals. xxx U1: did you cool down your actual thing? xxx S32: yeah. xxx IS2: did-did you wait for ten minutes already? xxx S32: yep. xxx IS2: okay. COM I think you can add more. xxx S32: add more? xxx IS2: [uh huh xxx U1: [((undecipherable)) keep it on ice xxx S32: okay. XXX ((pause)) xxx S33: (okay) all the spots are there. xxx IS2: okay. xxx so: yeah you need a: three to one ratio? xxx S33: I did that. xxx IS2: you did that? xxx S33: yeah. xxx IS2: okay. (just put into the) TLC plate and t-[just put it in-in the-XXX [I stop it here right xxx S33: xxx IS2: stop here because you have the: solvent right here. XXX [((undecipherable)) xxx S33: [and then put again under the UV light? xxx IS2: yes, and then outline where your spot is for-for the three? XXX uh: XXX xxx S33: wait so I need filter paper? xxx IS2: yeah sure. but you don't need to wait fo:r another ten minutes. XXX just get-(get that) inside it and th-put into the: chamber. XXX xxx S33: ((undecipherable))? xxx IS2: yes xxx S33: ((undecipherable)) take it out. xxx IS2: yes. xxx S34: I'm not seeing crystals. ((pause)) XXX xxx IS2: keep adding and swirl in the-in the w- ice bath. ((pause)) XXX and uh: XXX (so) you can use uh-uh: XXX ((undecipherable)) XXX to uh (scratch) the inside of this-of the flask. XXX ((pause)) XXX

```
how many (mil) do you- did you add already?
XXX
XXX
         [of cold hexane?
xxx S34:
         [um I don't know but like
xxx about three of these
xxx IS2: three?
        so you- oh: s-
XXX
XXX
         ((undecipherable)) add uh
xxx S34: six to seven?
xxx IS2: yes
xxx S34: you-you told me to do it with ten?
xxx IS2: ten yes just keep adding?
XXX
        if you don't (.) get crystals just keep adding,
        the cold
XXX
         and then swirl?
XXX
         ((pause))
XXX
         lemme see
XXX
XXX
         ((pause))
          you have right?
XXX
         there?
XXX
        do you see?
XXX
xxx S35: yeah.
xxx keep adding?
xxx IS2: this is the-
xxx S35: okay.
xxx IS2: crystals right?
xxx S35: okay.
COM IS2: you don't need to add.
xxx S35: no more?
xxx IS2: I think you: just do the filtration.
xxx S35: okay.
xxx IS2: right now?
        and uh: wash with cold hexene until-
XXX
         it should be very white↓ solid.
XXX
xxx S35: okay
xxx IS2: so that's why you need to wash with [((undecipherable))
                                            [which one is the:?
xxx S35:
42:01
xxx IS2: uh this one?
     did you add (paper) inside that?
XXX
xxx S35: yeah.
xxx IS2: okay so: yeah.
xxx S35: just pour it?
xxx IS2: pour it,
        and (.) rinse the flask with cold hexane,
XXX
```

```
((pause))
XXX
          it's come out?
XXX
xxx S35: is this what I'm supposed to be seeing?
xxx IS2: yeah you got crystals right?
xxx S35: okay.
xxx so can I [do the filtration then
xxx IS2:
                  [((undecipherable))
xxx yeah yeah
xxx S35: [okay
xxx IS2: [because you don't need to-
     you-you don't need too much crystals.
XXX
xxx S35: okay.
xxx IS2: as long as you get some and do the TLC plate that's fine.
         [that's enough.
XXX
xxx S35: [okay.
xxx IS2: okay
xxx S35: sure.
xxx IS2: and uh: you need to wash with cold hexene.
        so make sure you have uh: enough cold hexene.
XXX
         uh I think it's enough yeah.
XXX
XXX
          ((pause))
xxx S36:
         ((undecipherable))
xxx IS2: huh?
xxx S36: ((undecipherable)) this goes into here?
xxx IS2: yes.
xxx S36: (then you just turn the water on)?
xxx IS2: uh huh.
43:12
         ((no audible exchanges/audio cuts out))
XXX
44:27
xxx S7: this is almost twenty minutes but it's not turning
xxx U1: that's fine.
xxx S7: it's okay?
xxx U1: yeah yeah.
         [((undecipherable)) filter (down)
XXX
xxx IS2: [I w- i-
xxx S7: oh okay
xxx U1: yeah your crystals ((undecipherable)).
xxx IS2: are you waiting for the last spot?
xxx S7: yeah the- no not the last spot for the twenty.
xxx IS2: twenty minutes.
xxx S7: yeah.
          ((pause))
XXX
xxx U1: [(just keep it ((undecipherable))
```

```
xxx IS2:
           [u:m
           ((pause))
XXX
45:00
           ((pause))
XXX
xxx U1:
         it looks cloudier.
         is that just me?
XXX
         yeah that's just me.
XXX
xxx U2: ((undecipherable))
xxx S7: [((undecipherable))
xxx U1: [(she just not get crystals)
xxx IS2: so uh:
xxx [your solution is-
xxx U2: [did you add the ((undecipherable))
xxx IS2: [is the uh: is orange right before?
xxx U1: [(did you add- add more hexane)
xxx S7: mhm.
xxx U1: (yeah add more hexane).
xxx S7: hexane.
xxx U2: is it cloudy though?
         wait,
XXX
          why (isn't) your solution orange?
XXX
xxx S7: uh because it reacted?
         and she said that after twenty minutes it's supposed to
XXX
         turn clear?
XXX
           cause it turns back into
XXX
          [((undecipherable))
XXX
xxx IS2: [yeah
xxx S7: it was orange before.
XXX
         and then it changed [to
xxx IS2:
                               [so what's the color at the twenty
         minutes?
XXX
xxx U2: oh twenty minutes what was the color at twenty minutes?
xxx S7: uh: it was clear.
xxx U2: [ah: shit.
xxx IS2: [it was clear already?
xxx U2: yeah that's- [(I think you might've) messed up the:-
xxx IS2:
                        [uh:
xxx U2: the uh (.) ratio.
xxx S7: oh really?
xxx IS2: what ratio?
xxx U2: o-of the: reactants.
         right?
XXX
xxx IS2: uh:
xxx U2: she might've put too much of one reactant than the other.
```

xxx IS2: SO XXX what you add is-is right right? mhm. xxx S7: xxx U2: lemme just- lemme just make sure. ((pause)) XXX xxx U2: (you add) - you add uh [((undecipherable)) xxx S7: [((undecipherable)) yeah XXX xxx U2: three mils of methylene chloride xxx S7: yeah xxx U2: okay xxx IS2: so this is ((undecipherable)) not ((undecipherable)) right xxx S7: yeah maleate [and then three [and you didn't ((undecipherable)) xxx S7: xxx S7: no and then I did um the: ten drops of bromine? XXX xxx U2: bromine yeah. XXX and it was definitely ten? xxx S7: yeah xxx U2: what do you think? [(she should start over)? xxx IS2: [uh: just keep adding XXX [(adding hexanes right? xxx U2: xxx IS2: [so: xxx S7: adding hexanes xxx IS2: [so we canxxx U2: [okay keep adding hexanes xxx U1: just keep adding hexanes. xxx IS2: [um] xxx U2: [yeah yeah yeah if that doesn't work then we'll have to figure something out XXX xxx IS2: [yes [just xxx S7: [okay [((undecipherable)) [there- there is enough time for you to do it over if xxx U2: you had to XXX xxx S7: okay xxx U2: but umxxx U1: (we don't want you to) xxx IS2: [((laugh)) xxx U2: [(I mean) yeah no one wants to. xxx IS2: just add- keeping adding and uh you can use a spatula to s-scratch the s-surface. XXX xxx S7: okay. xxx S37: is that (enough) crystals?

XXX	((pause))
xxx IS2:	((undecipherable mumbles))
XXX	uh: how many uh cold hexane have you added already?
CLF S37:	uh: about maybe: a millimeter or two.
CLF IS2:	wh-wh-what?
xxx S37:	((a bit clearer)) a millileter or two.
XXX	a couple of drops like
xxx IS2:	of hexene?
xxx S37:	oh the hex-cold hexene.
COM IS2:	so okay s-so I suggest you add uh: four mil.
xxx S37:	four milliliters?
xxx IS2:	yeah four millileters.
XXX	((pause))
XXX	is your crystals come out?
xxx S38:	uh: I'm waiting for the mixture to cool.
XXX	cooling off.
xxx IS2:	oh you finished the reaction (.) just now?
xxx S38:	no ((sounds rude))
xxx IS2:	did you add the cold hexene already?
xxx S38:	no?
xxx IS2:	oh just waiting cooling down?
xxx S38:	yeah.
xxx IS2:	and uh: you don't-
xxx S38:	(add-adding some) hexene to it (next)
xxx IS2:	okay.
XXX	so:
XXX	uh you have cold hexene right?
xxx S38:	yeah.
xxx IS2:	okay
47:57	
XXX	((no dialogue with IS2))
48:36	
xxx IS2:	
	no not yet.
xxx IS2:	swirl it?
XXX	((pause))
XXX	so: keep adding?
XXX	and uh put-put it in the ice bath?
XXX	yes.
XXX	((pause))
XXX	it should be uh four m-mil uh cold hexene.
xxx S39:	-
xxx IS2:	[before you get some crystals,
XXX	so if you cannot get some crystals just keep adding,

```
xxx S39:
          [okay.
xxx IS2: [okay just be patient okay
          ((pause))
XXX
          hi uh: did you get (.) crystals?
XXX
xxx S40: uh: yeah [((undecipherable))
                   [lemme-lemme check.
xxx IS2:
          oh (.) oh oh
XXX
          ah it's good so ((undecipherable)) very good.
XXX
          ((pause, waves to the camera))
XXX
          sorry.
XXX
49:35
XXX
          ((pause))
50:06
xxx IS2: you finish the first five spot already?
xxx S41: uh yeah now I-I'm just [doing (the)
xxx IS2:
                                [twen- twenty minutes is done?
xxx S41: (huh) no that's what I'm about to do in
xxx two minutes I do the twenty minutes.
xxx IS2: oh.
xxx S41: and then ice bath.
xxx IS2: okay.
XXX
        so I w-eh you are waiting for the: twenty minutes right
xxx S41: yeah.
50:26
XXX
          ((audio is bad quality))
51:20
xxx IS2: ten is fine for part b.
xxx S42: okay.
XXX
         ((pause))
xxx S43: ((undecipherable)) I need to add more?
xxx IS2: uh: how many uh: cold hexene have you added?
xxx uh- you don't-
xxx S43: (this-)
xxx IS2: do you (remember)?
xxx S43: uh: seven?
xxx IS2: seven ?
xxx S43: [yeah.
xxx IS2: [seven mil.
xxx S43: yeah.
xxx IS2: oh okay.
          uh:
XXX
          I think for the TLC it's-it's enough.
XXX
XXX
         so you can do the filtration right now.
xxx S43:
         [oh okay.
```

```
xxx IS2:
         [okay it's enough.
xxx S43: okay.
xxx IS2: yeah good (.) job!
         ((pause))
XXX
         ((gasp))
XXX
          ((pause))
XXX
XXX
          did you get crystals?
xxx S44: is this enough?
COM IS2: uh how many (of) cold hexenes have you added?
COM S44: what?
xxx IS2: how many hexenes- cold hexenes [have you added?
xxx S44:
                                       [I just added some drops of
xxx it.
xxx IS2: some drops of it.
xxx S44: yeah.
xxx IS2: uh:
xxx S44: should I add [more?
xxx IS2:
                      [you can-you can keep adding?
xxx S44: oh okay.
xxx IS2: so: make s- uh: to check whether y-you ca:n get some more,
xxx S44: okay.
xxx IS2: if-if doesn't change just do the filtration?
xxx S44: okay.
XXX
         ((pause))
xxx IS2: yeah.
xxx S11: no- I'm just waiting for my thing to cool down.
xxx okay so
xxx S11: it's been like (thirteen minutes) ((undecipherable)) so
just
xxx IS2: are you waiting for the: twenty minutes?
xxx S11: yeah.
xxx IS2: for the last (spot)?
xxx S11: no for the (first one) for it to cool down.
xxx IS2: oh for it to cool down?
xxx S11: yeah.
xxx IS2: oh okay.
xxx S11: so it's been like thirteen minutes so just
XXX
        ((undecipherable)) right?
xxx IS2: uh: yes just keep adding the cold hexene inside it,
XXX
         and uh: probably at first i-if you don't get some
         crystals
XXX
         but just keep adding?
XXX
xxx S11: okay.
xxx IS2: okay?
```

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xxx S11: I have a few in here.
xxx IS2: I-I think you can add it right now.
xxx S11: okay.
xxx ((pause))
xxx S45: ((undecipherable) uh the new solvent to- for it to run the
XXX
        tlc,
xxx IS2: yeah you need to change the solvent because
xxx [the ratio is different.
xxx S45: [so we:-
        so can I use um
XXX
        six millime-milliliters
XXX
xxx IS2: uh:
xxx S45: of the hexane and two of the-
xxx IS2: but in total ((undecipherable)) ten right
xxx S45: ((undecipherable))
xxx IS2: in tot-in total you need ten
XXX
        because five is not enough.
xxx because for the part a uh [we ha-
xxx S45:
                                  [what about eight?
     is eight enough?
XXX
xxx IS2: [eight?
xxx S45: [eight total?
xxx IS2: uh you can calculate uh: usi:ng uh: twelve
xxx uh you need twelve [in total
xxx S45:
                           [oh you can use twelve
xxx IS2: twelve in total.
xxx S45: okay.
xxx IS2: okay?
xxx S45: okay got it.
xxx ((pause))
xxx IS2: yep
xxx S7: I still ((undecipherable)) crystals and I added more um
        cool hexane.
XXX
xxx IS2: no crystals right
xxx S7: yeah: I don't see any.
        I don't know what to do.
XXX
XXX
         ((undecipherable))
xxx IS2: uh:
xxx did you check (on) the first five spot?
xxx uh with UV light?
xxx S7: yeah.
xxx IS2: you have right?
xxx S7: yeah.
xxx IS2: you ha:ve
```

((pause)) XXX because the-because the question is uh: XXX 54:01 you have (.) clear, this is colorless. XXX it's a white solution. XXX xxx S7: mhm, xxx IS2: can you get some uh spatula? uh xxx S7: [(so here's a spatula) xxx IS2: [yso uh: XXX it's fine so: XXX XXX uh: anyway so if you don't have the crystals for the last spot, XXX [mhm. xxx S7: xxx IS2: [so it's fine, you can ru:n the first five spot, XXX XXX a:nd uh just check whether you've got right right solut-the right (reaction) XXX because- you see- if you have the:-XXX because the first spot is (our) product. XXX xxx S7: yeah. xxx IS2: yes? so: XXX the last spot was gonna be the crystals that were washed xxx S7: in um (.) hexanes right and then you put it on the last one XXX xxx IS2: yes. xxx S7: okay. xxx IS2: so: uh: the thing is uh: you can check- you can- you can- you can run the TLC XXX even though you don't have [for the last one. XXX xxx S7: [okay. but we don't hand in crystals? XXX xxx IS2: well no we don't need [to. xxx S7: [oh: xxx IS2: we don't need a little bit for the last spot. xxx S7: [oh: xxx IS2: [we don't need to collect any crystals. 55:05 ((pause)) XXX 55:38 ((undecipherable)) water inside your solution? XXX xxx S7: ((shakes head no)) xxx IS2: [are you sure?

xxx S7:	[I need to put one to three mixture and then the ten drops
XXX	of bromine ((undecipherable))
xxx IS2:	uh: so-so-so this is right.
XXX	so: after you finish the: reaction
XXX	I mean if uh after twenty minutes?
XXX	so you put in the: in the ((undecipherable)) make it-
XXX	make the reaction cooling down right?
xxx S7:	yeah.
xxx IS2:	so because if w-if-if your-if you- this mixtu:re has some
XXX	water inside it?
XXX	your-you-your reaction is messed up.
xxx S7:	oh: yeah no I made sure I put the- add the .
XXX	[((undecipherable))
xxx IS2:	[((undecipherable))
xxx S7:	yeah.
xxx IS2:	okay.
COM	uh: micropipette,
COM S7:	oh <u>micro</u> pipette?
COM IS2:	oh: so- uh: l-l-l-l-l-
COM	the pipette. sorry.
XXX	((pause))
xxx U1:	still couldn't get crystals?
xxx IS2:	no crystals.
xxx U1:	are you sure you did- you added the right stuff?
xxx S7:	uh: that's what I don't understand
XXX	I feel like something must have gone wrong somewhere?
xxx U1:	so just (.) restart
xxx S7:	[((undecipherable))
xxx U1:	[you have time
xxx S7:	um what did you say?
xxx IS2:	water?
xxx S7:	
XXX	crystals?
XXX	do I- do I restart this?
xxx IS2:	
xxx S7:	1
xxx IS2:	
XXX	((pause))
XXX	this is (the cold hexene) right?
XXX	this is your cold hexene?
xxx S7:	u:m yeah
57:00	
XXX	((audio cuts out; no complete exchanges))
57:58	

```
xxx S7:
         (isn't it) a little cloudy?
xxx IS2: yeah: a little bit.
           ((pause))
XXX
           so uh:
XXX
          you prepare your solu -you prepare your cold hexene s- uh:
XXX
          with this beaker, (.) always?
XXX
xxx S7:
          uh no.
          uh I put it in the- I washed this with acetone and
XXX
          then I put it in here.
XXX
xxx IS2:
          oh you washed with acetone?
xxx S7:
          yeah (beforehand).
          and then I cleaned this and then I [((undecipherable))
XXX
                                              [no.
xxx IS2:
          you don't need-
XXX
xxx S7:
         [((undecipherable))
          [you are not supposed to clean with-with-with-with
xxx IS2:
XXX
          acetone.
xxx S7:
          [oh:
xxx IS2:
          [(acetone will) mess up this reaction.
           ((pause))
XXX
           so:
XXX
          yes I-I think so yea- lemme check.
XXX
           ((pause))
XXX
          ((undecipherable)) clean this and then put it (that was a)
xxx S7:
          clean beaker.
XXX
           ((pause))
XXX
          ((reads notes))
xxx IS2:
XXX
          you see?
XXX
          ((pause))
          it-it should not be clear.
XXX
          it should be orange.
XXX
           ((pause))
XXX
           the reason why your-your-y-your solution is become clear
XXX
           that's why because you have some-
XXX
XXX
          you- you have some acetone [inside it.
xxx S7:
                                      [oh:
xxx IS2:
          and water inside it.
xxx S7: yeah okay cause I put the- (the thing) in here,
xxx IS2:
          right,
xxx S7: and then I put the cold hexane,
xxx IS2: so: if-if the solution is ((undecipherable)),
          and the origin?
XXX
          he- uh she rinsed the: flask with uh: with- with- with
XXX
         acetone.
XXX
```

xxx S7: ((undecipherable)) the cold hexane (in the) beaker xxx ((undecipherable)) 59:50