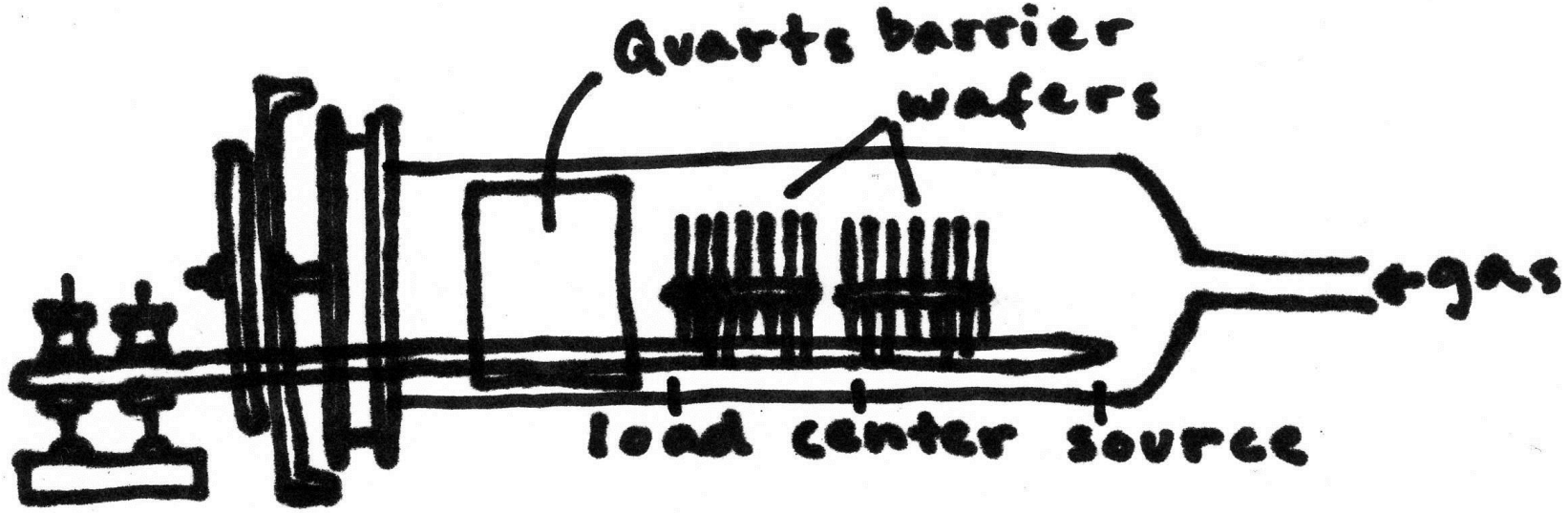
tystar5 characterization

By Ruby Spring

tystar for dummies



Q:

tystar5 = tystar1?

tystar1 gate1ox:

- 950˚C
- 60 minute oxidation time
- 20 minute N2 anneal

and you get…

~350 Å

(our target for T5)

tystar5:

- uncharacterized
- 8” capability
- full of silly recipes (dryoxha & wetoxha)
- serious temperature stabilization issues with said silly recipes


tystar5
TYSTAR
USE ARROW KEYS TO SELECT RECIPE; USE BACKSPACE TO CORRECT ENTRY; DON'T USE CLEAR
tystar6
TYSTAR
START
EMO

agenda:

- ❑ edit
- ❑ test
- ❑ analyze

results!

(initial test using 4000sccm O2 for 1hr at 950˚C)

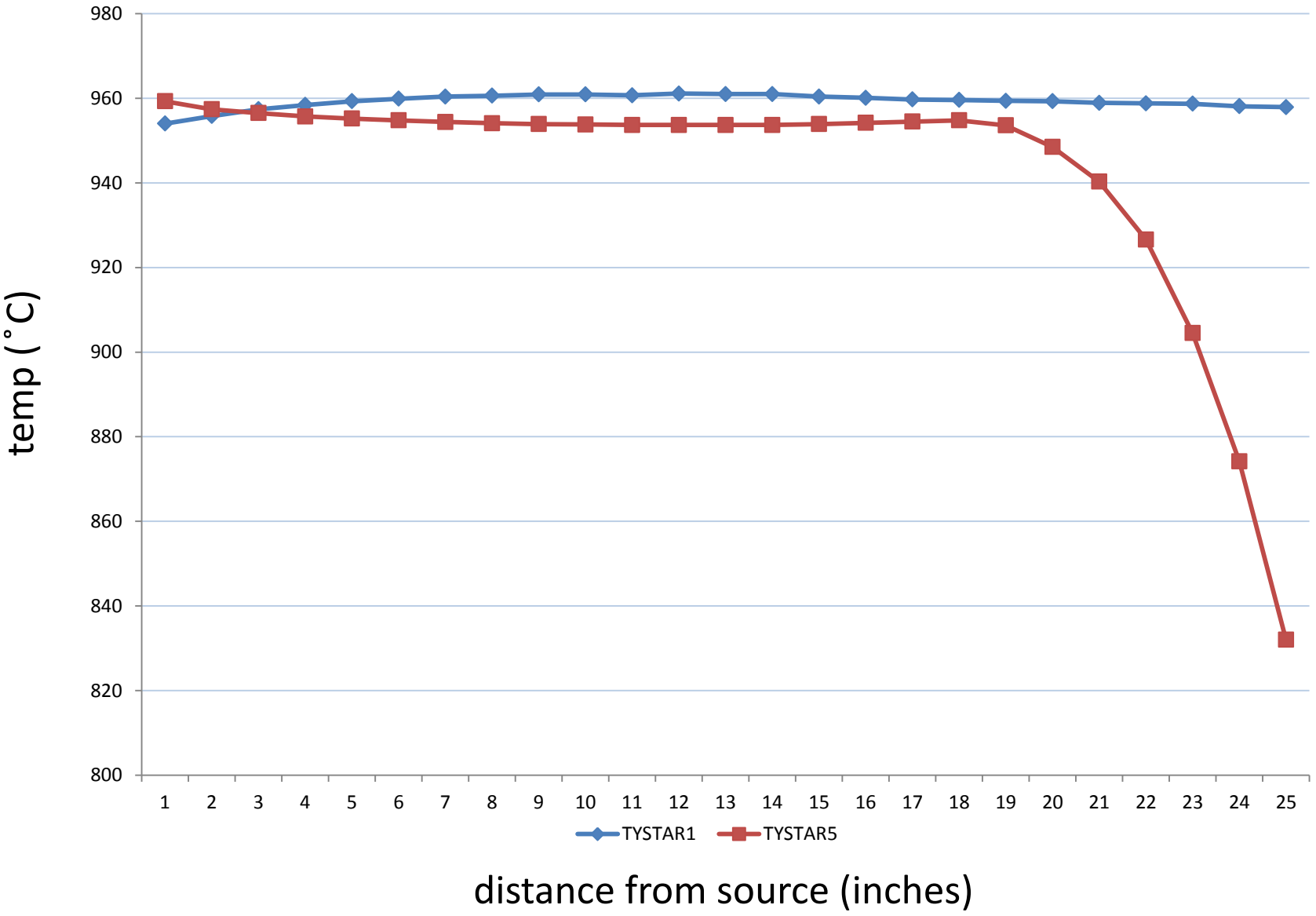
L	C	P
572.4 Å	626.8 Å	606.2 Å

remember, our goal was 350 Å…

something's not right…

- temperature?
- N2 flow?

temperature profiles



nope.

must be…

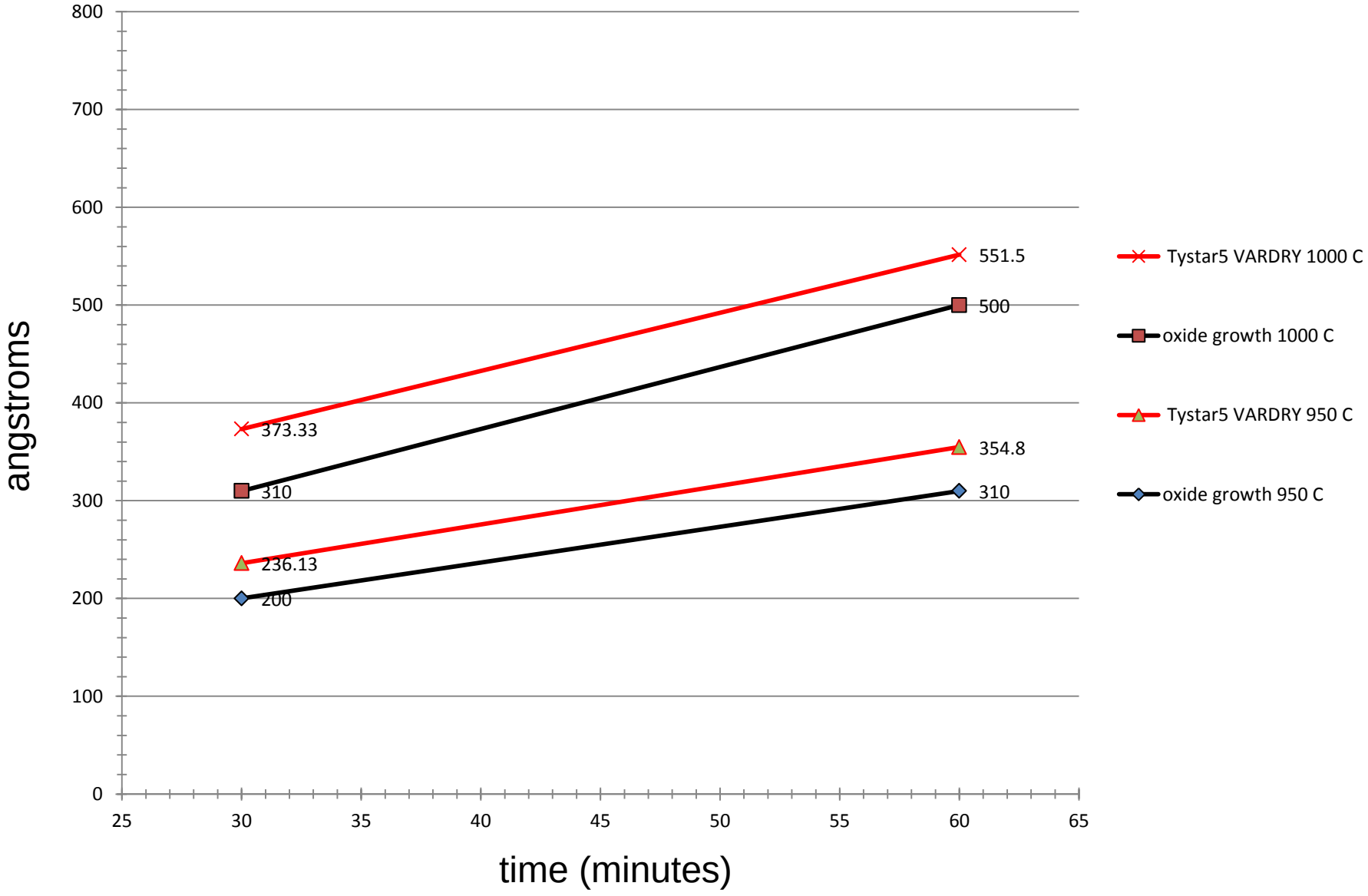
nitrogen flow!

(not enough N2 during non-oxidation steps can cause oxidation)

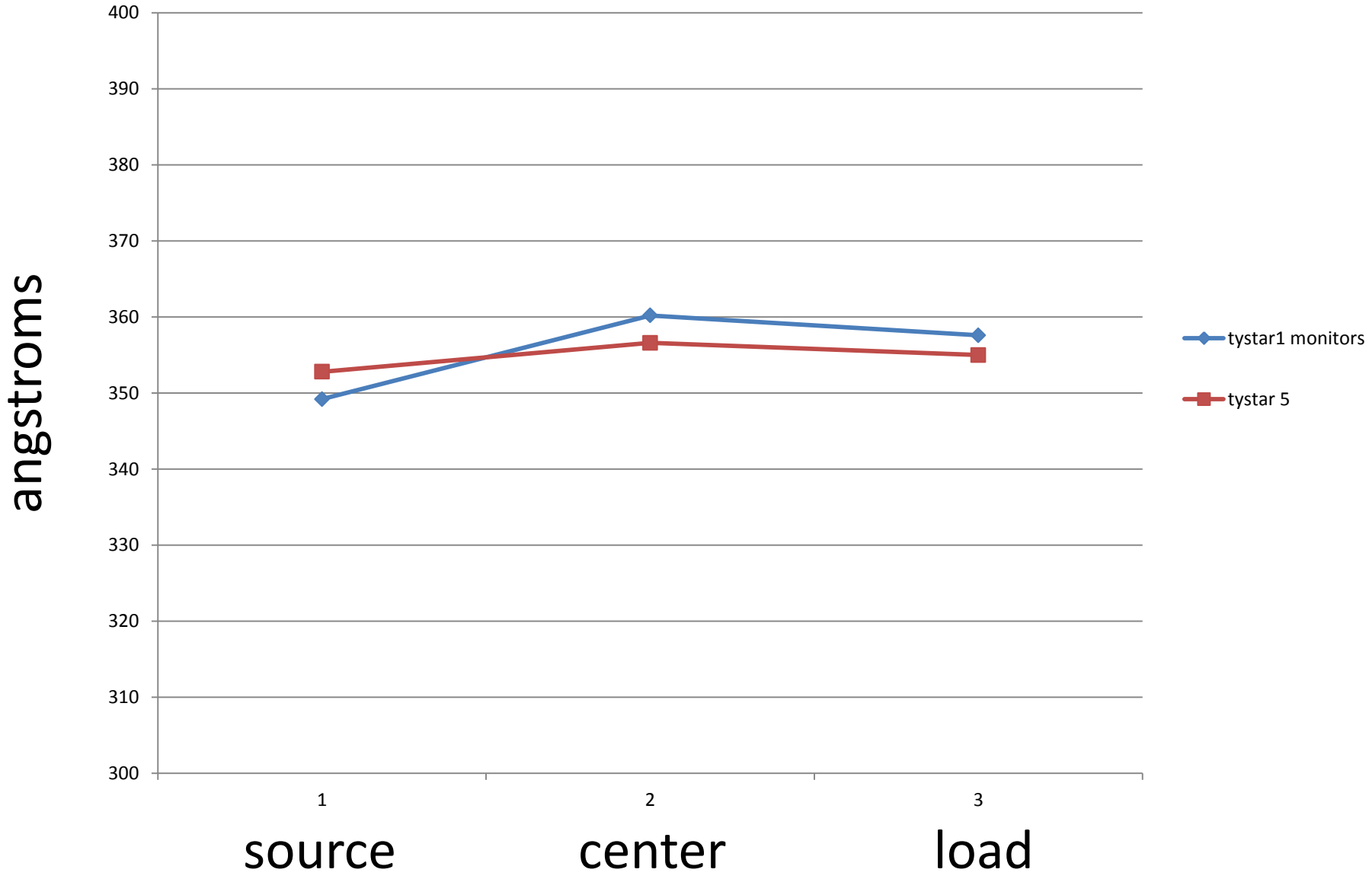
“new” agenda:

- ❑edit
- ❑test
- ❑analyze/get confused
- ❑repeat x4

tystar5 oxidation compared to established oxide charts



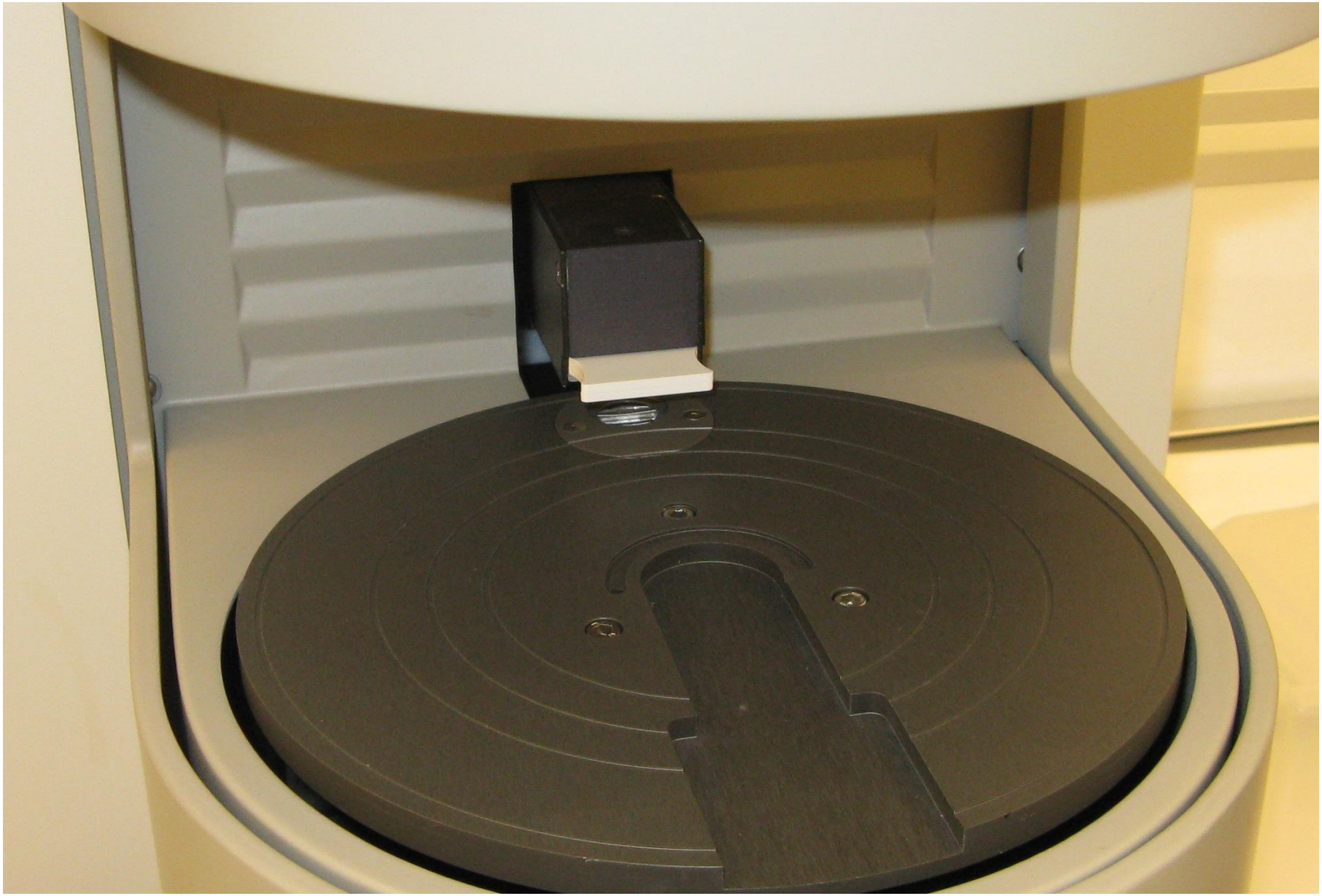
finally reaching our goal…



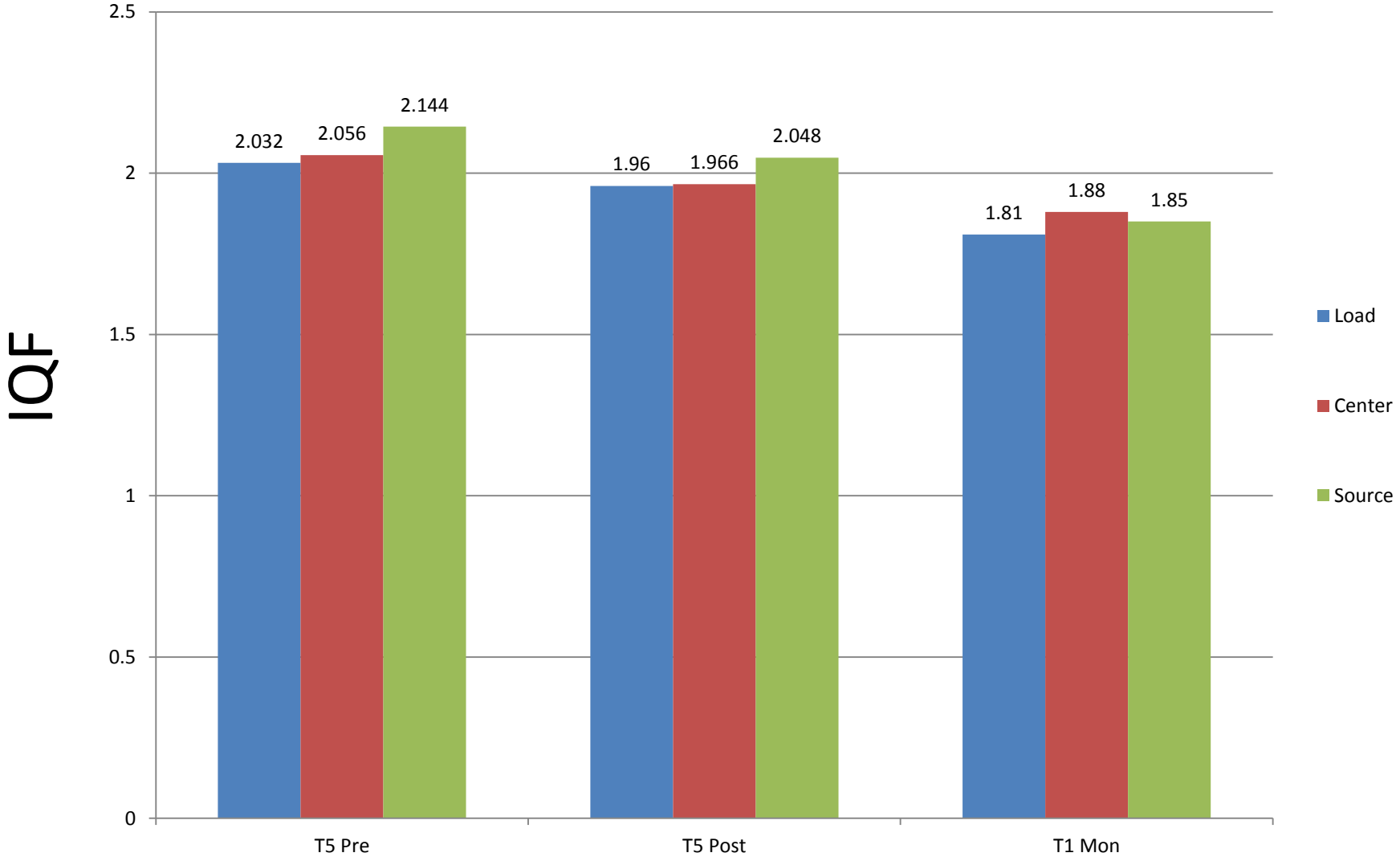
next up on tystar5:

TLC & IQF???


SCA
SemiTest
SCA-2500
SURFACE CHARGE ANALYZER
UP
PINCH HAZARD



IQF pre and post TLC clean compared to tystar1



oh well

new Q:

tystar5 = tystar2?

(wet oxidation)

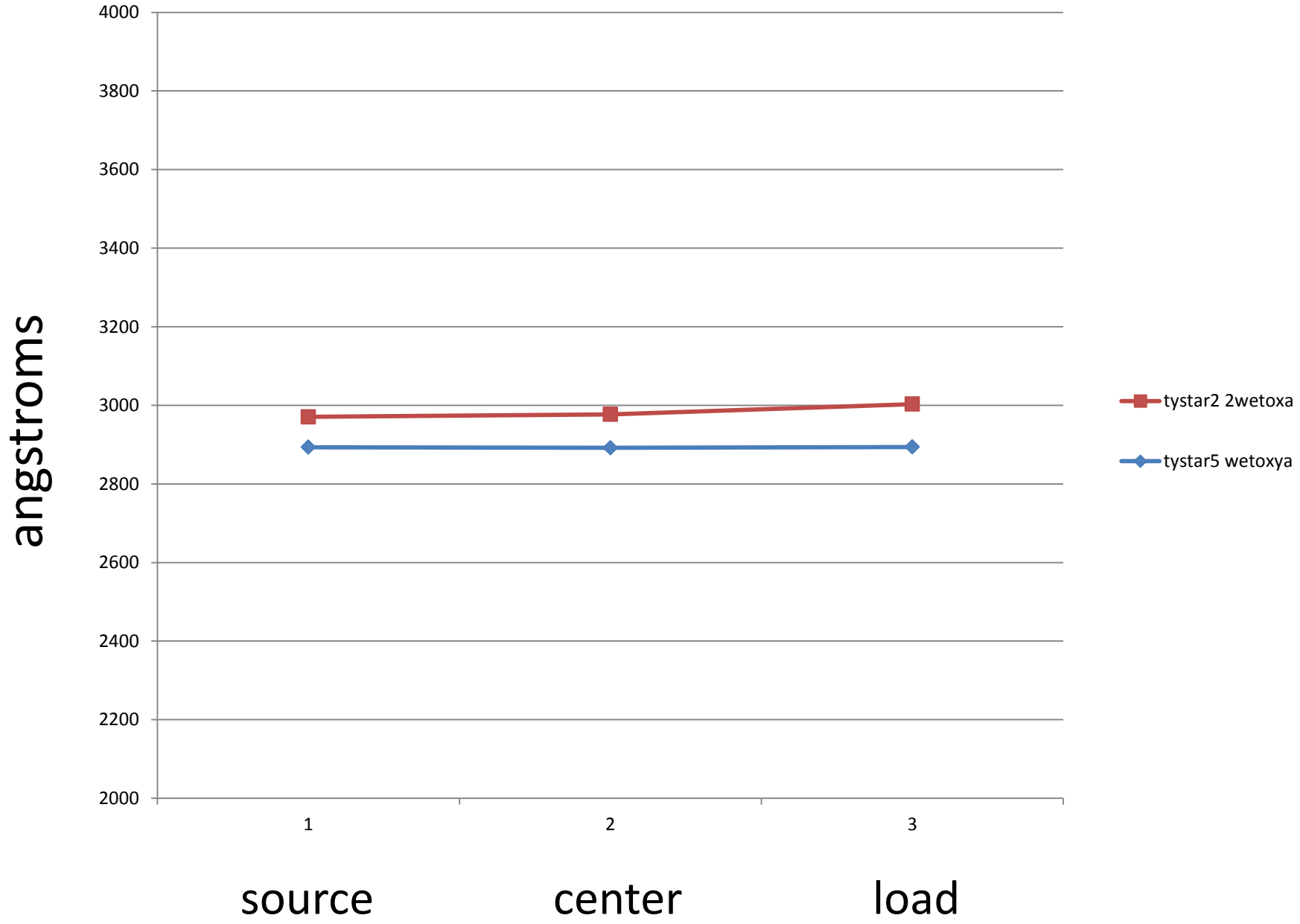
tystar2:

- 1000 ˚C
- 45 minute wet oxidation time
- 4 ml H2O
- pre and post 5 min dry oxidation

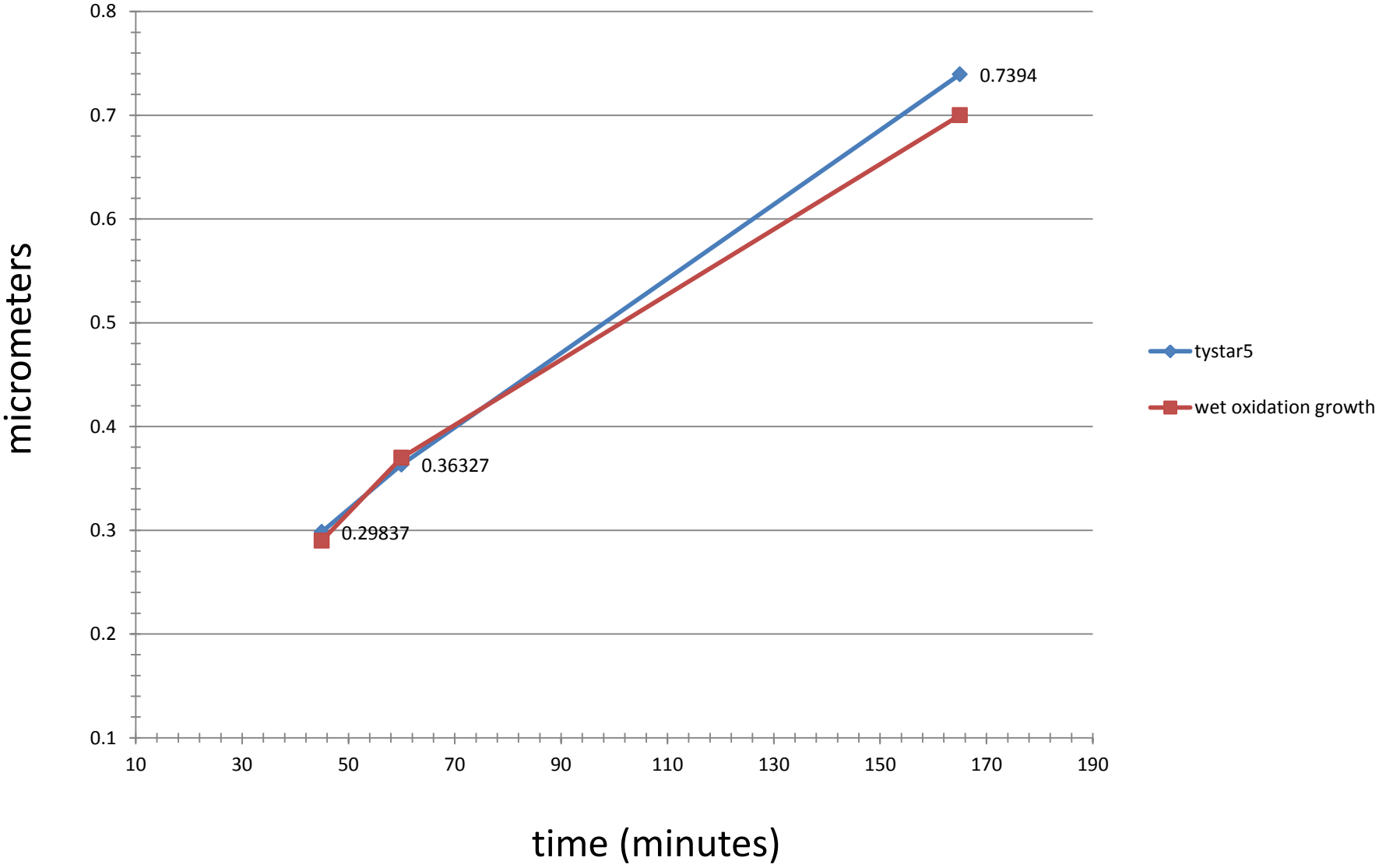
and you get…

~3000 Å

(our new target)


angstroms
4000
3800
3600
3400
3200
3000
2800
2600
2400
2200
2000
1
2
3
source
center
load
tystar2 2wetoxa
tystar5 wetoxya

tystar5 wet oxidation compared to established chart



al fin:

8” wafer runs

vardry (1 hr 4000sccm O2 at 950˚C, goal = 350 Å)

6”	8”
346.8	351.4

wetoxya (45 min 4ml H2O at 1000˚C, goal = 3000 Å)

6”	8”
3046.2	3077.4

SCIENCE…!

acknowledgements:

my wafer-washers:

- Karishma
- Narek
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- Kim

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- Robert
- Takanori
- Wendy
- Eric
- Ryan

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Rosemary, Gina, and Sia