

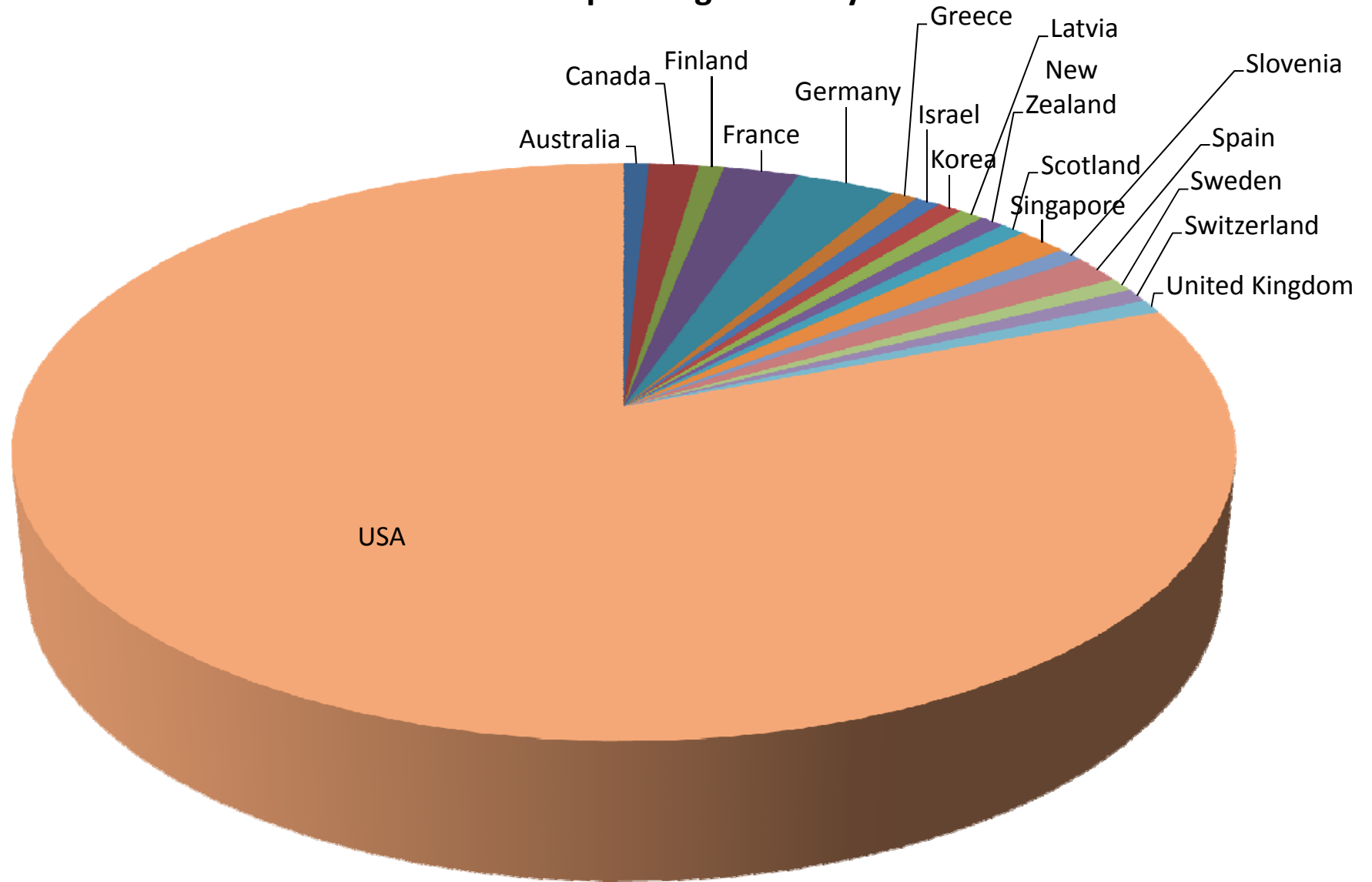
**SWGMAAT**

**Tape Group Survey**

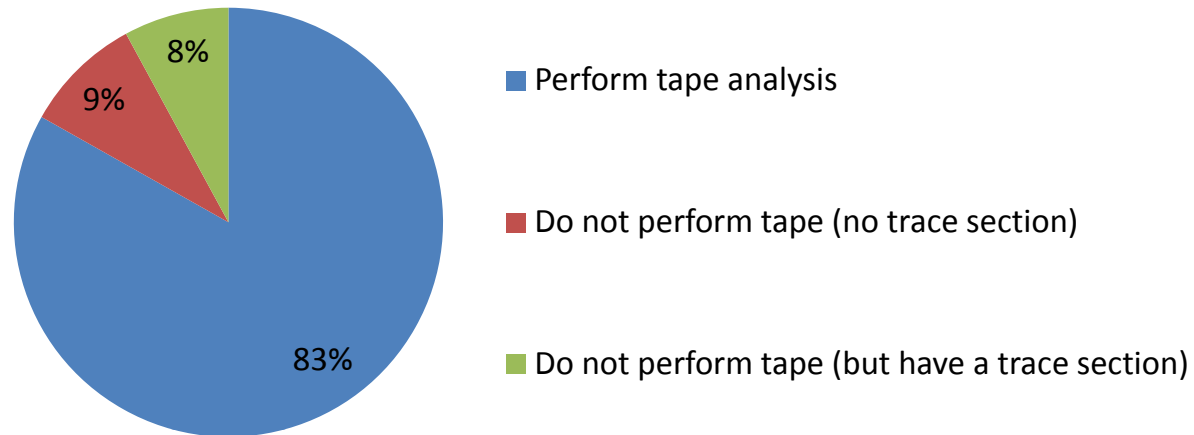
**Spring 2012**

- Spring 2012 email requesting survey sent to:
  - ASLCD/LAB accredited labs
  - FQS accredited labs
  - ASTEE members
  - SWGMAT members
- Total of 130 responses.
  - 18 different countries
  - 105 different lab systems

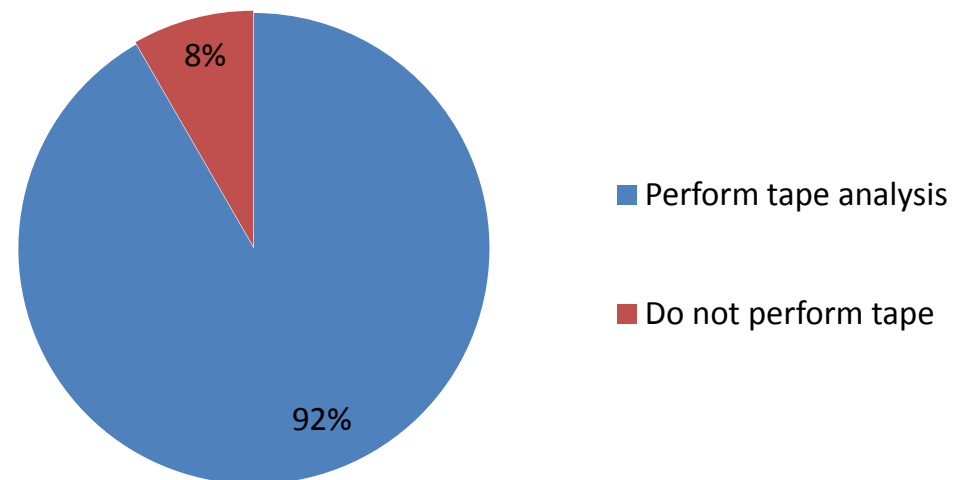
## Countries responding to survey



### Lab systems responding to survey

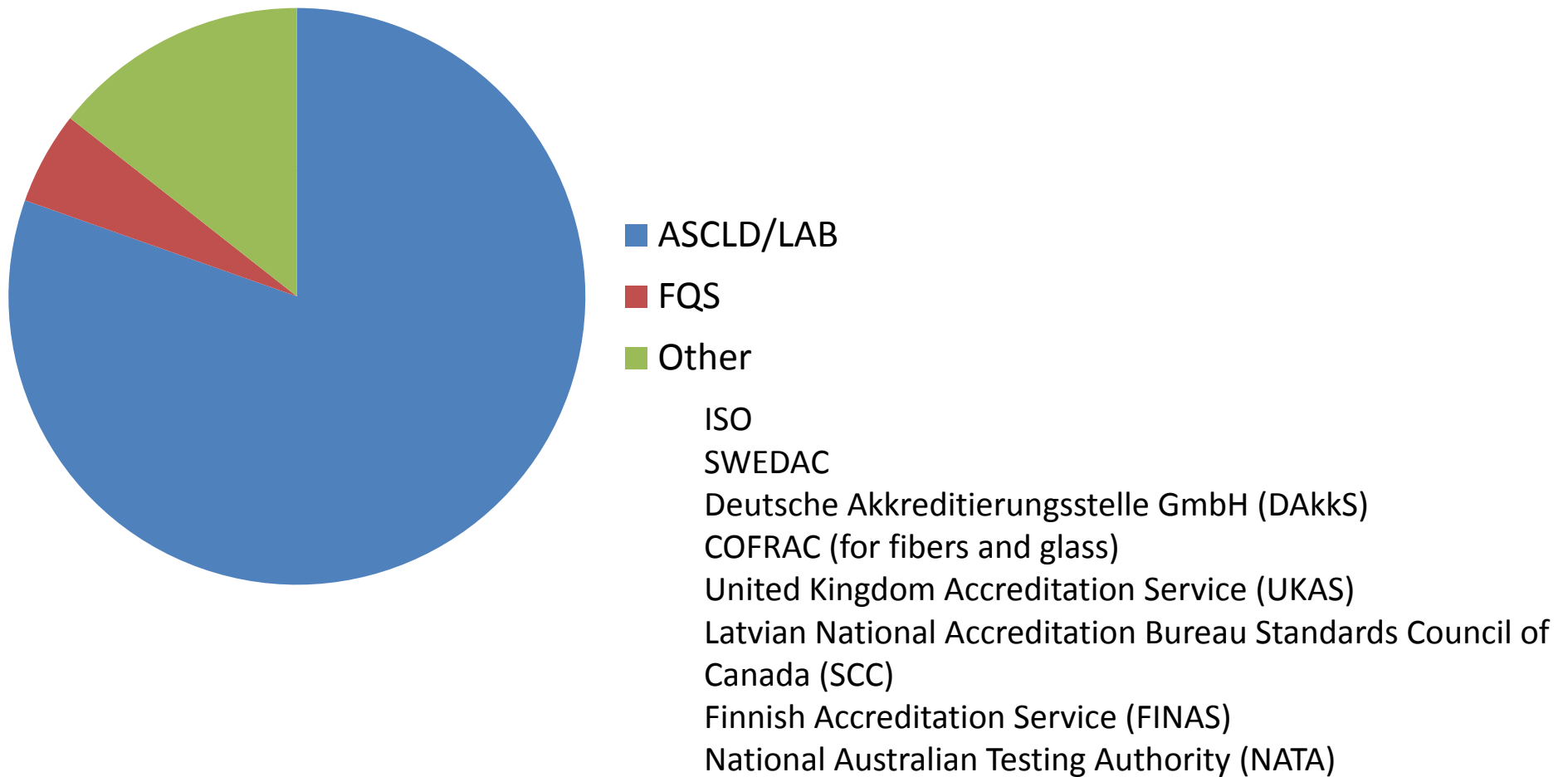


### Labs with trace sections



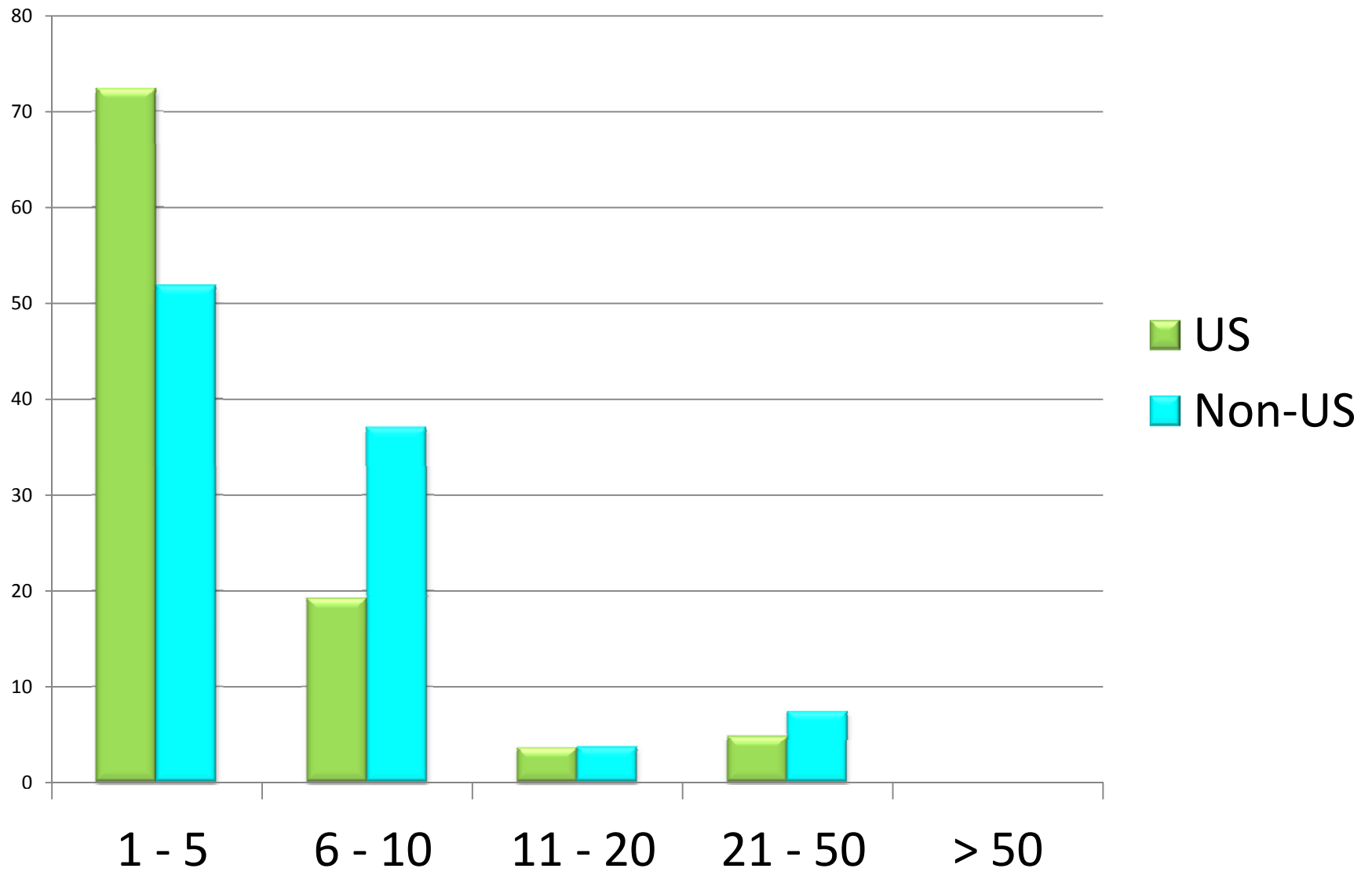
# Laboratory Accreditation:

87 % of laboratories were accredited in a trace discipline while 13% were not.

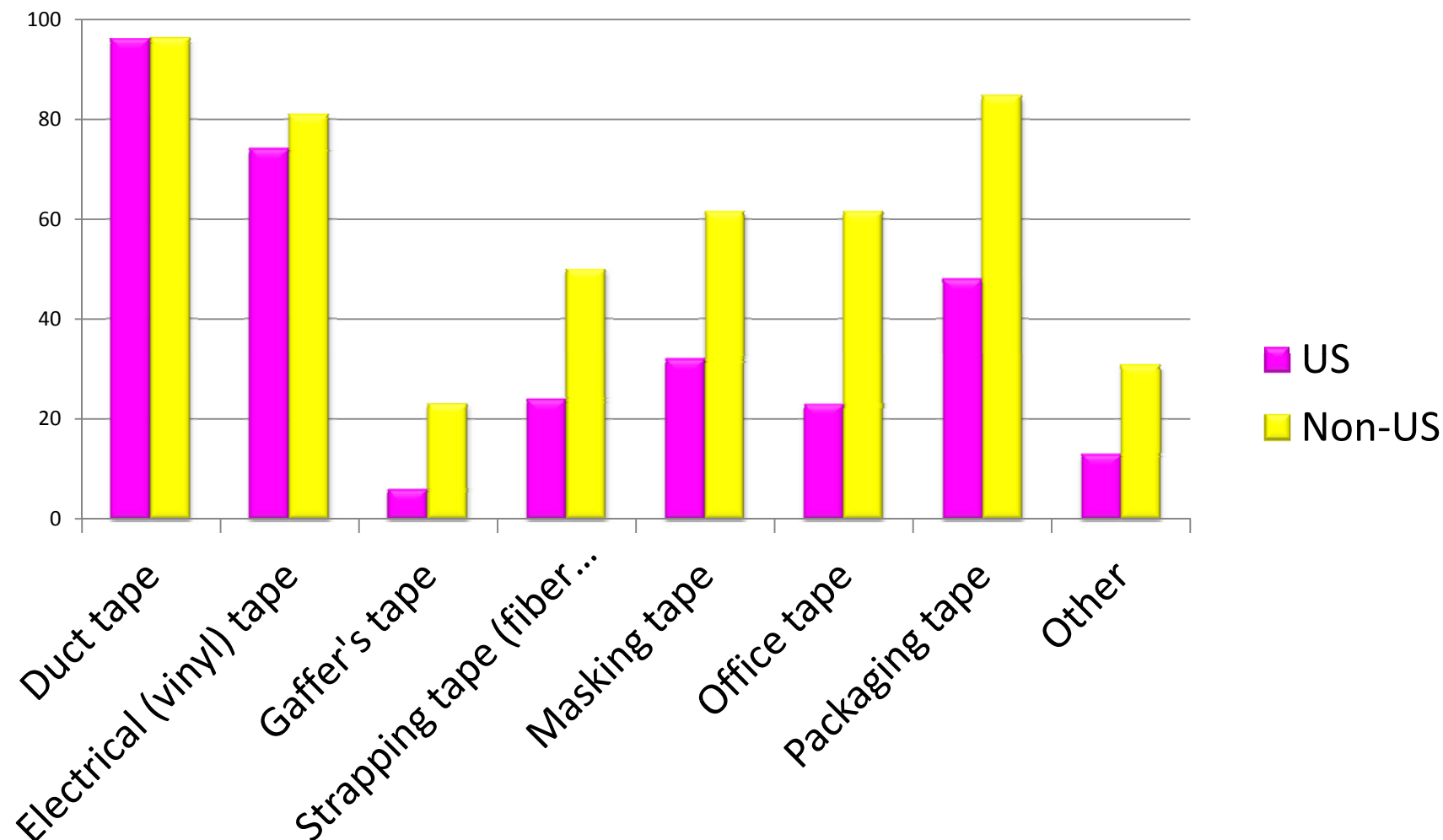


- Trace section performs tape analysis
  - 95 % said yes
  - 5 % said other disciplines
    - Marks
    - Genetics
    - Firearms/toolmarks for physical match
    - Crime scene and latent

# Number of cases analyzed per year



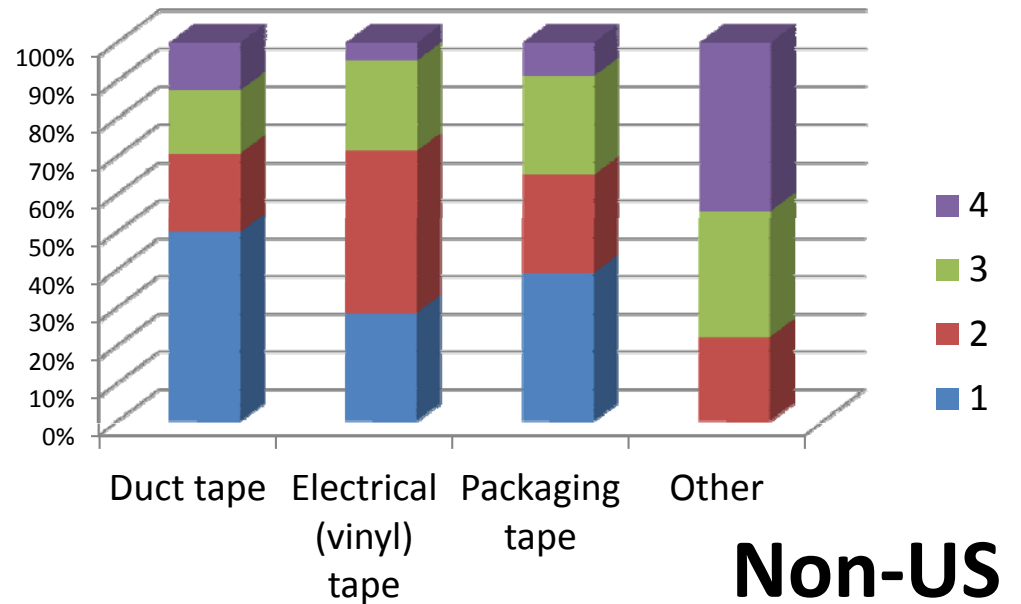
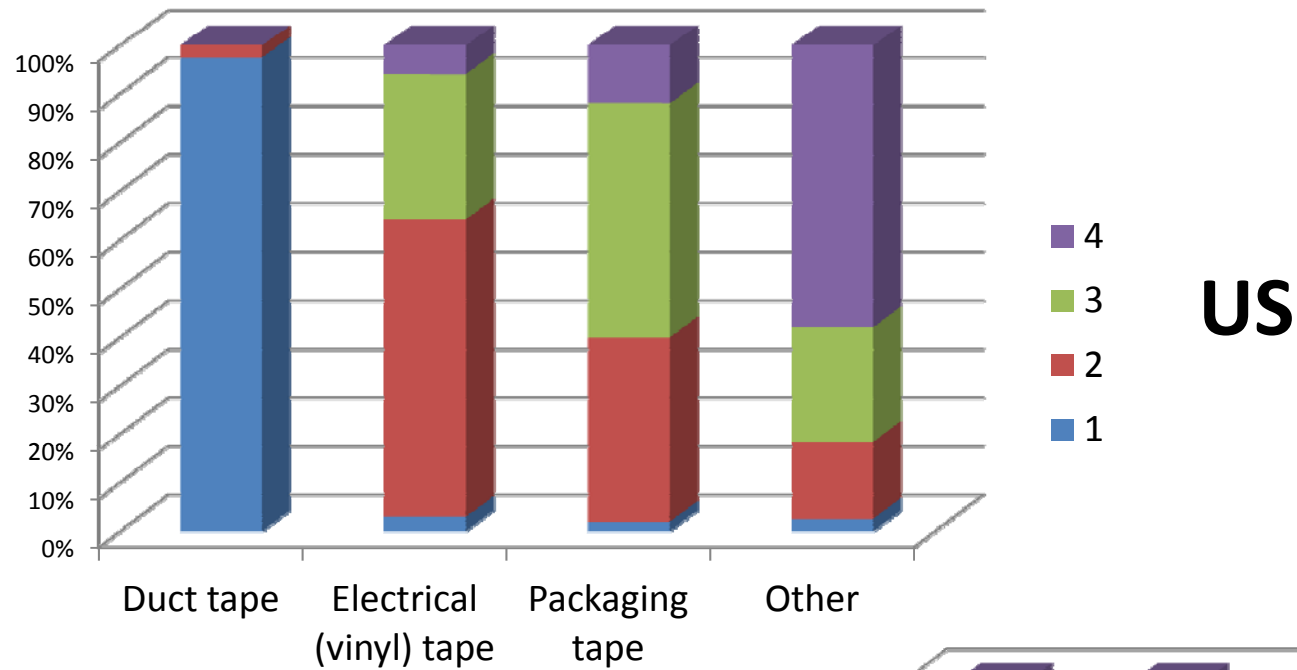
## Types of tape laboratories have seen (%)



“Other” includes paper backed tape, medical tape, painters tape, foam tape



# Ranking of tape seen in casework



- Does your laboratory perform physical match examinations on tape ends?

YES 97 % NO 3 %

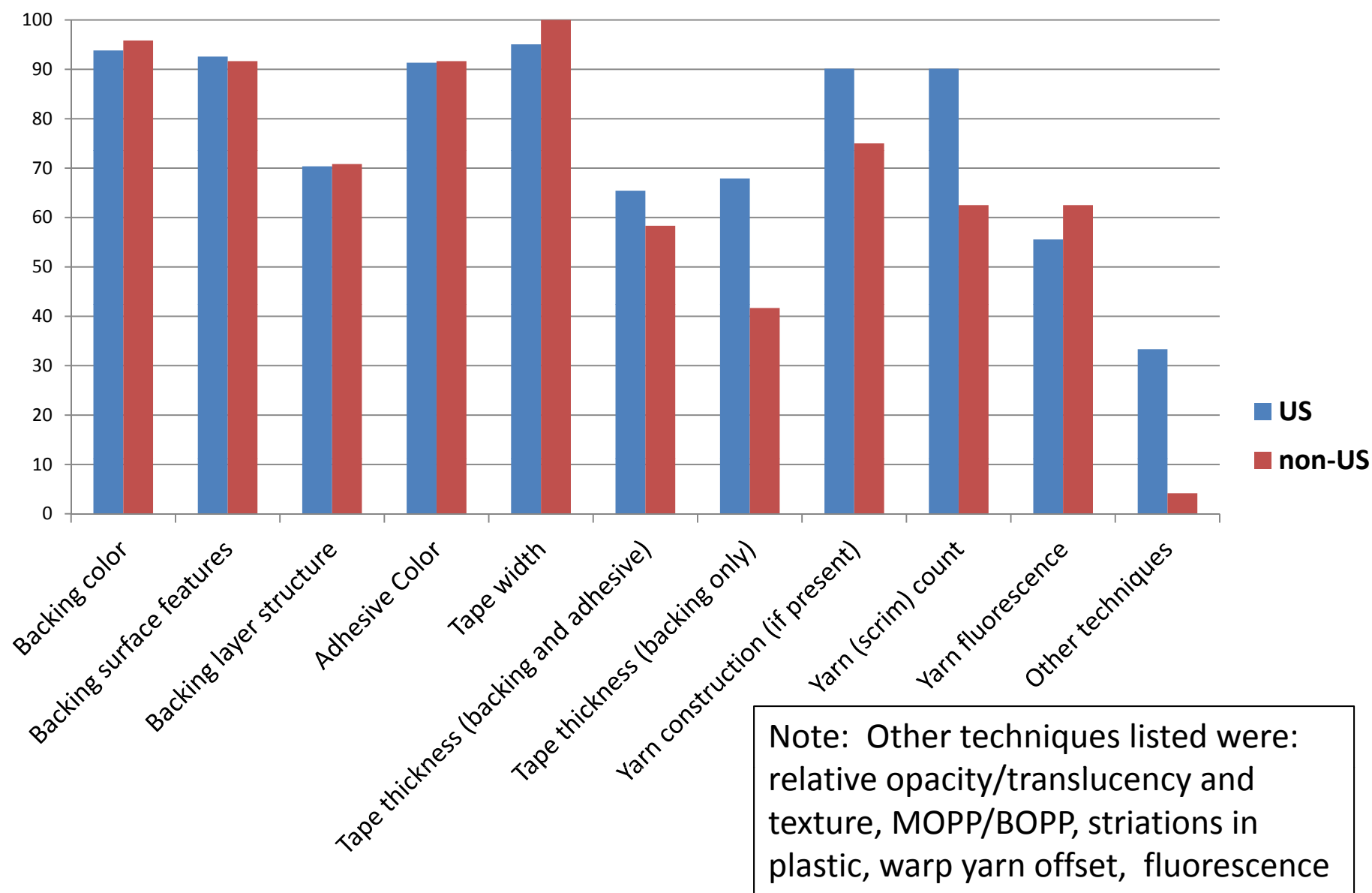
- What discipline(s) in your lab performs physical match exams on tape ends?

- Trace (82%)
- Toolmarks (8.5%)
- Chemistry (6.5 %)
- Other (3%)
  - “Multiple sections”, “Tape group”, “QD for paper &cellulose”

- If a physical match is made between tapes, do you then proceed with chemical analysis?

YES 22 % NO 78 %

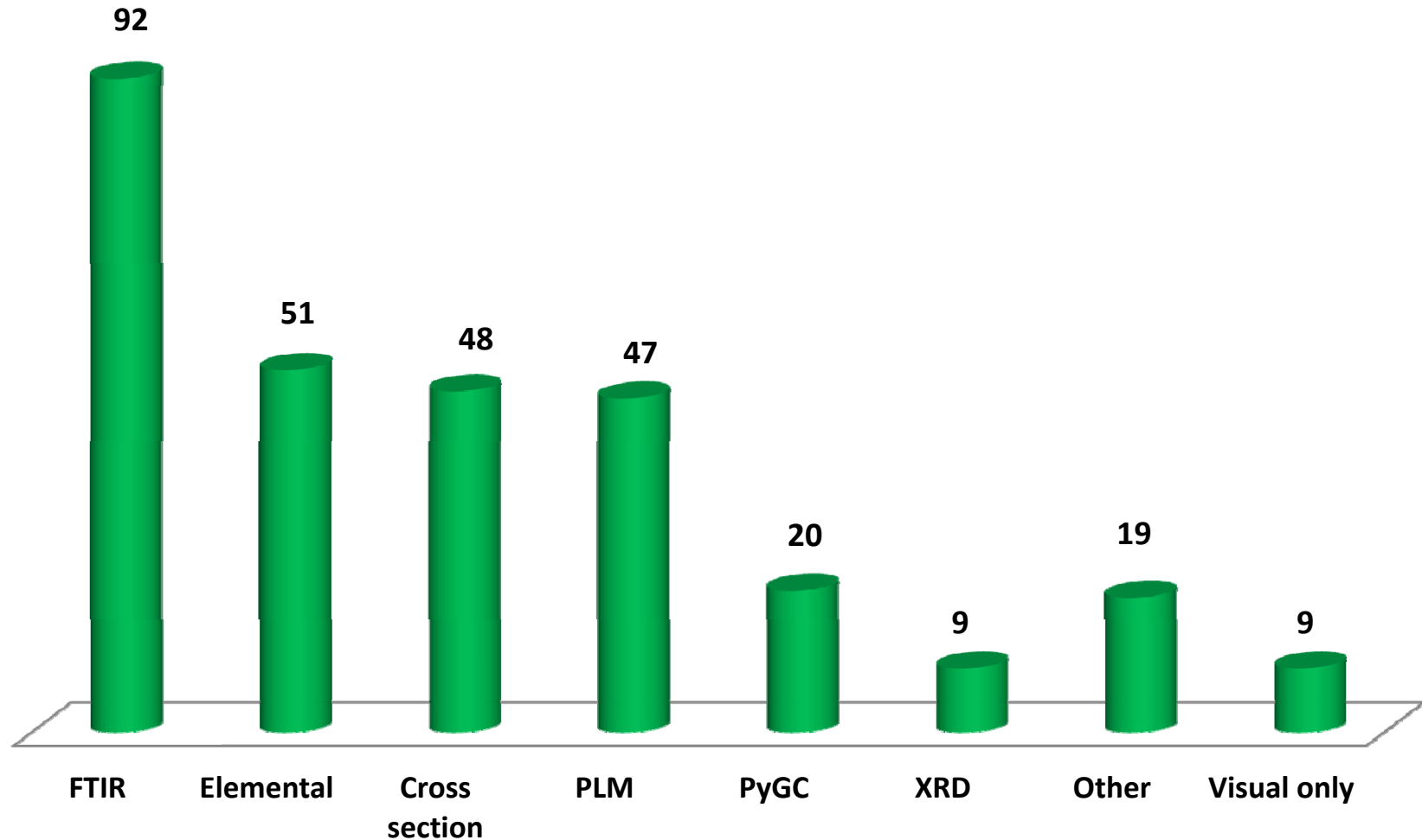
# Visual examinations completed (%)



- Do you separate the backing, adhesive and fabric (if present) for further examinations?

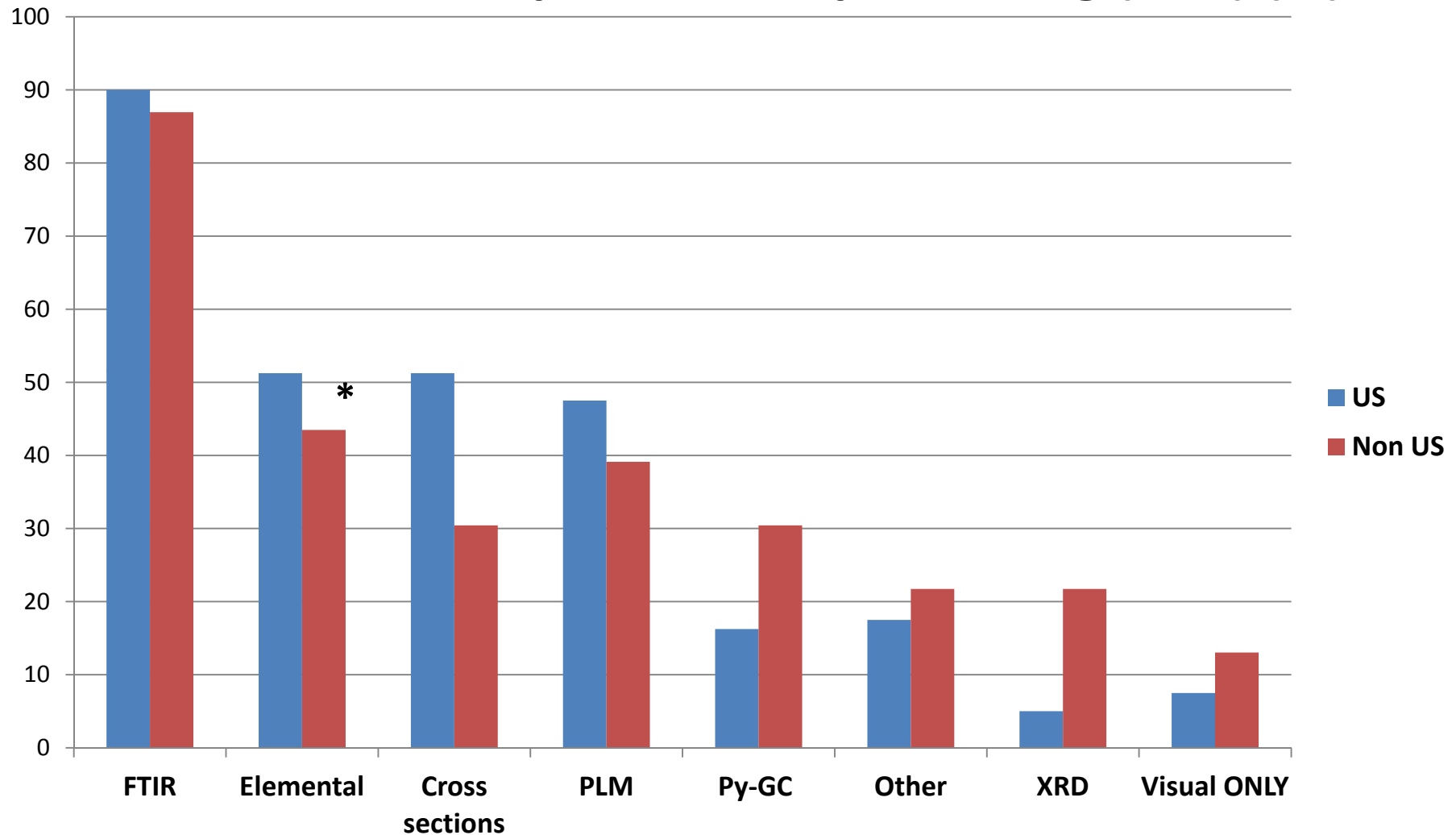
YES	84 %	NO	16 %
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## Exams done on adhesives (%)



Other included scrim, fibers, relative opacity/translucency, fluorescence, thickness, MOPP/BOPP, striations, MSP for colored tape, warp yarn offset,

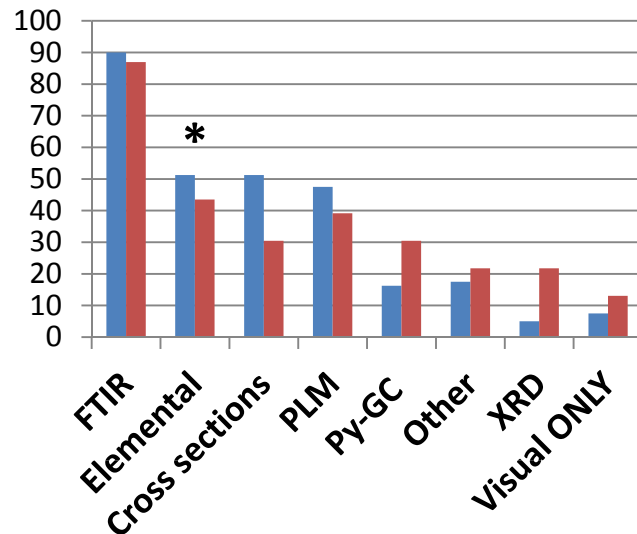
## Examinations completed on tape backing (film) (%):



Other included MSP, ALS, fluorescence, MP, Pabsts, IRMS, Raman, topography via SEM, EAIRMS,

**\* See next slide for specific instruments**

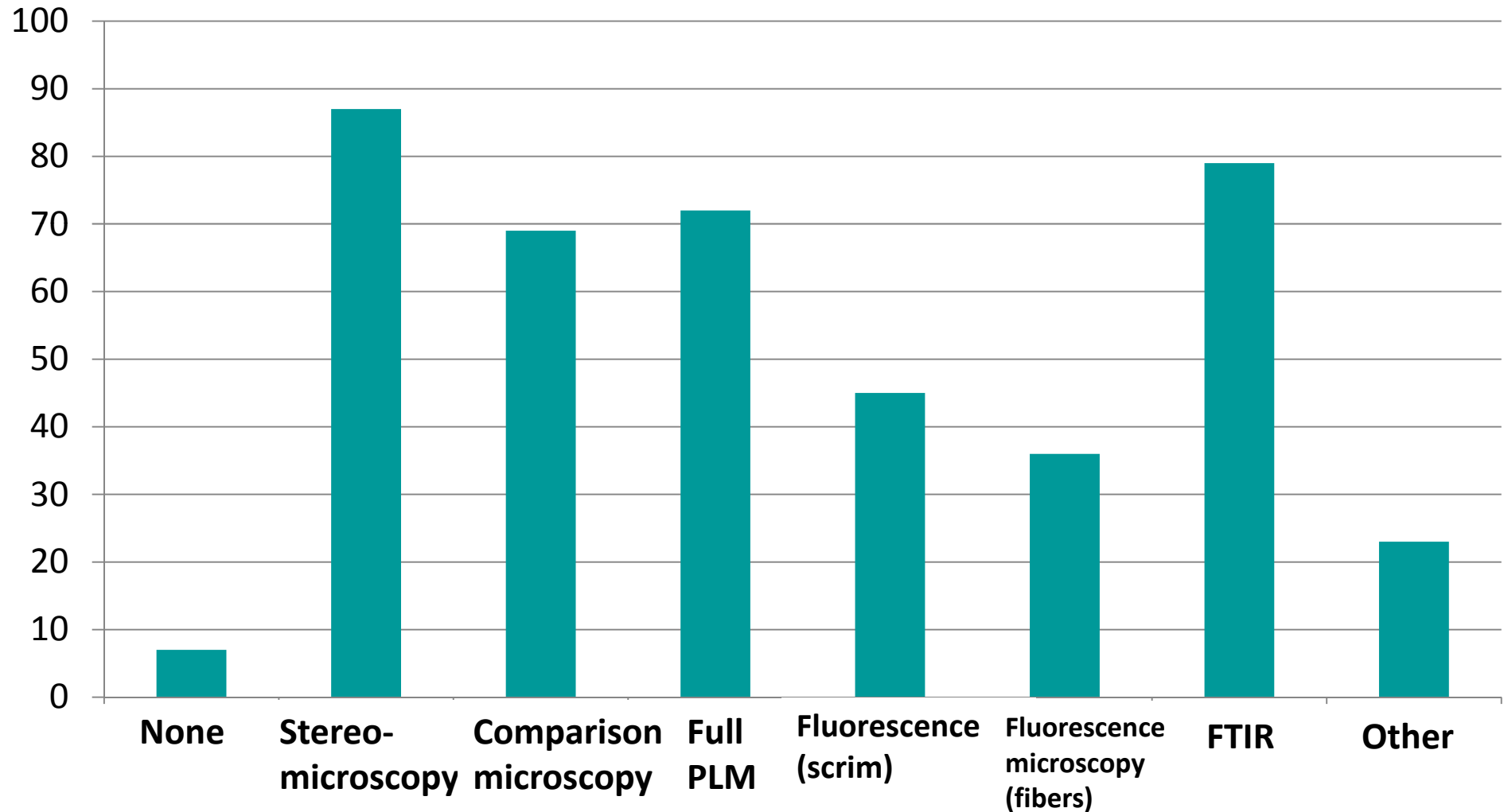
## ELEMENTAL \*



## Elemental Instruments (both US and Non-US)

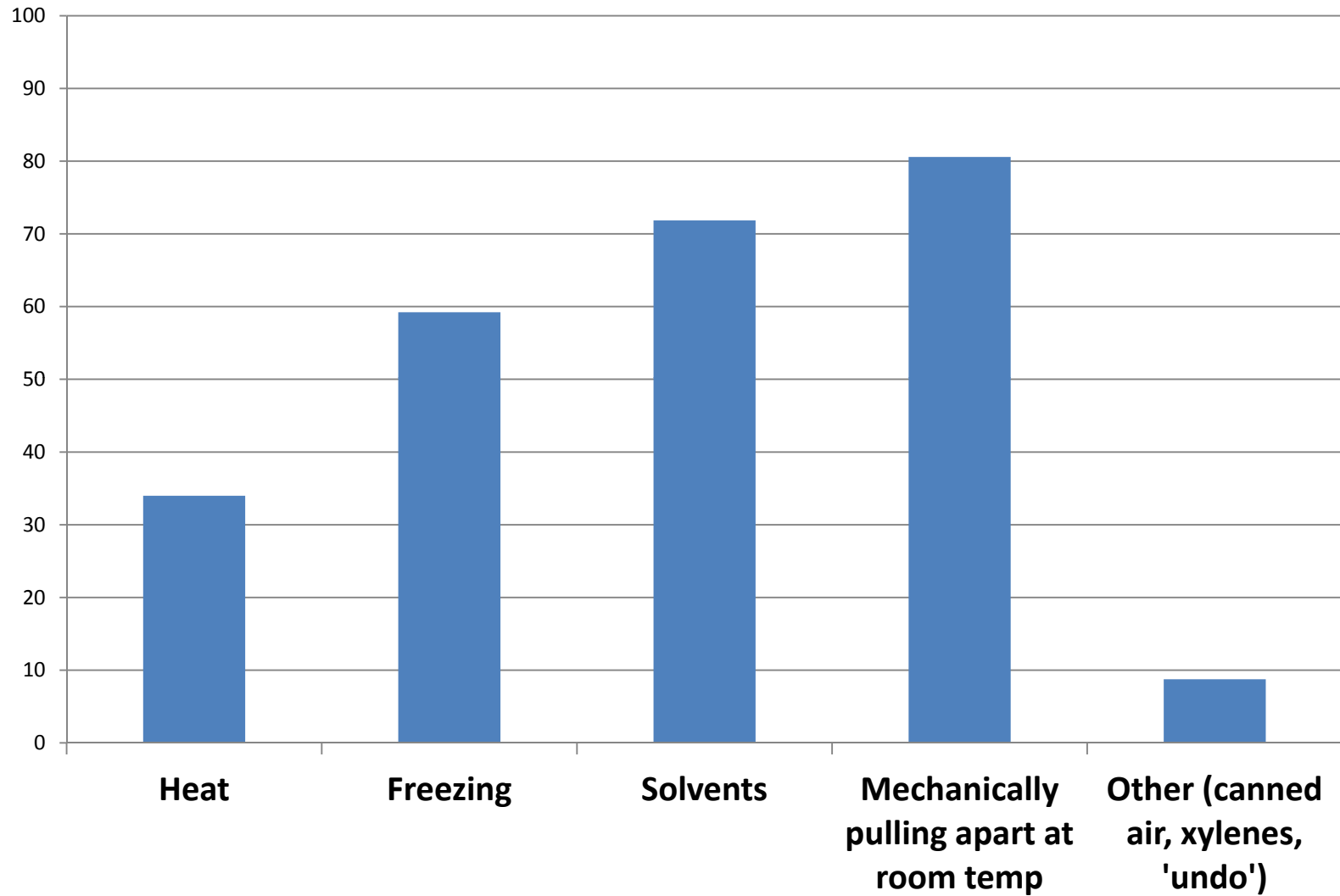
SEM	72%
SEM and XRF	17%
XRF	9%
LAICPMS	2%

# Analysis on fibers in tape that has fabric/filament reinforcement (%):





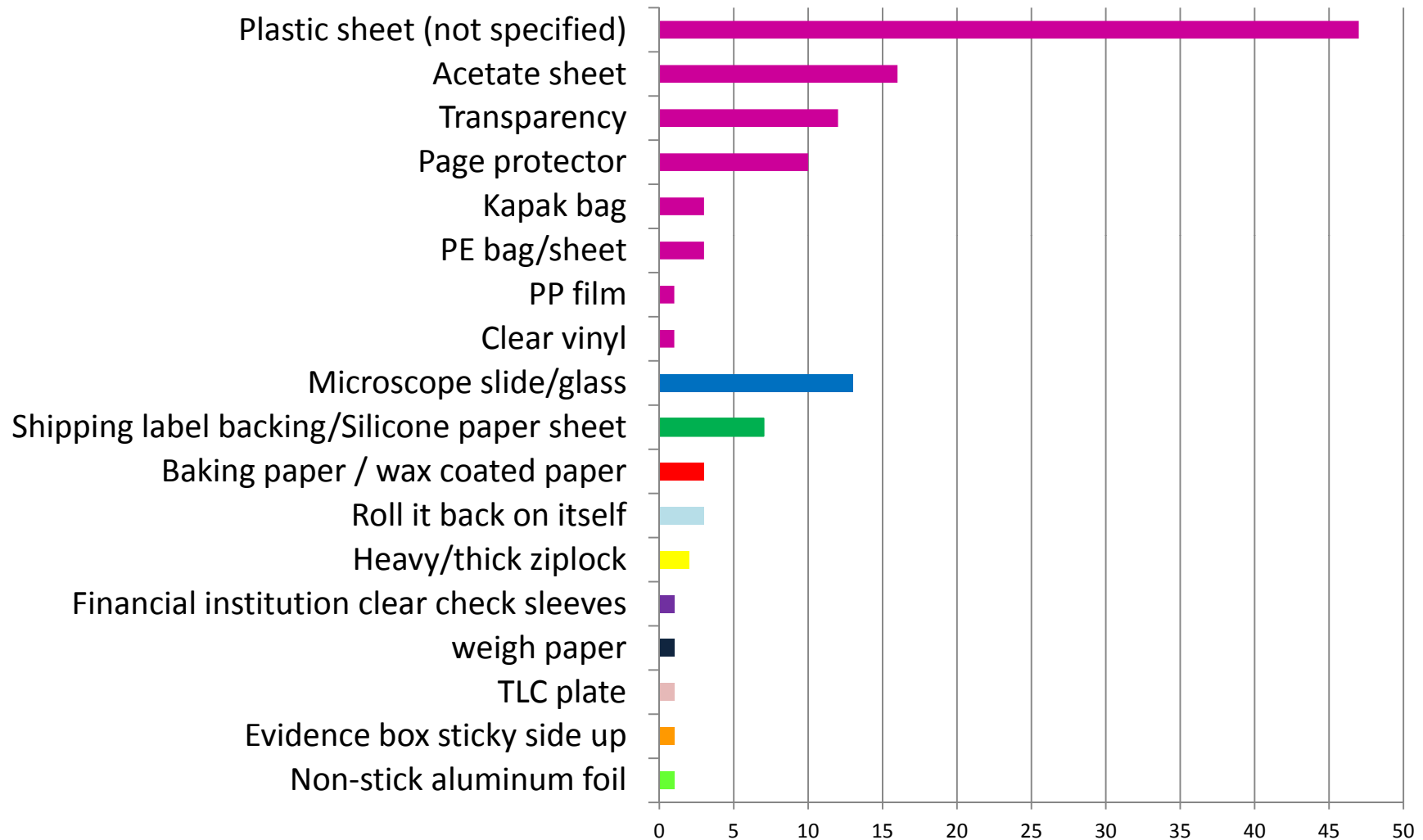
# Methods used to separate tape (%)



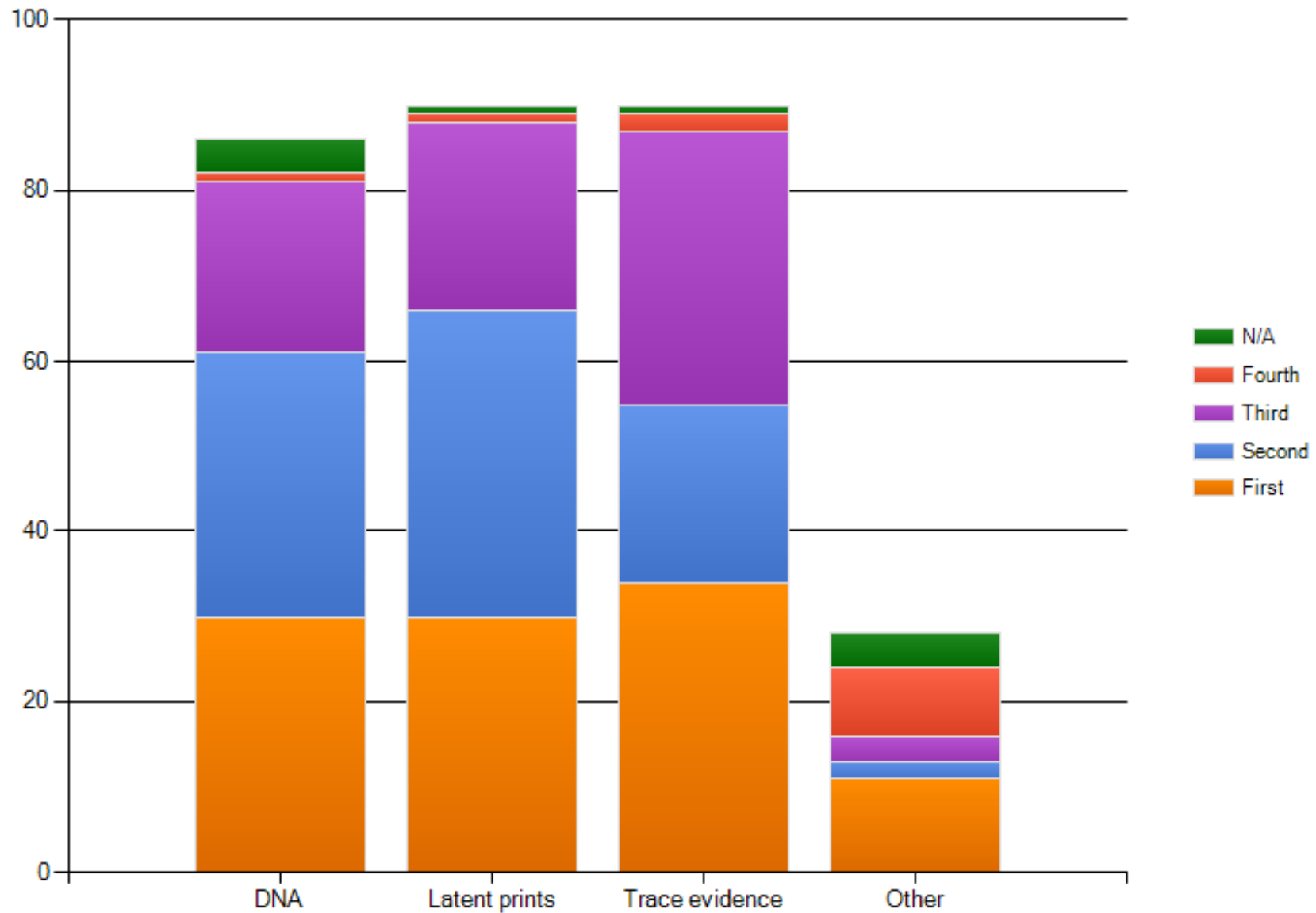
# If a certain method works well, please explain:

- Shandon's reagent + methyl salicylate
- Freezing and compressed air seem to work the best with the least loss of trace evidence
- Shandon xylene substitute worked better on duct tape adhesive than heating or freezing
- Mixture of cyclohexane and isopropanol (1:2) put into a syringe. Small drops help to remove from surface
- I've noticed certain duct tapes 'untangle' well if one waits a few minutes or so (versus immediately after freezing in freezer or liquid nitrogen)
- Bathing the tape in liquid nitrogen for a minute before pulling it apart
- Liquid nitrogen for duct tape; canned air propellant for packaging and electrical tape
- Suspend above liquid nitrogen in a cooler
- Sonication with tape submerged in UNDU (heptane) or xylene
- Freezing first, then use solvent sparingly
- Hexane and/or canned air for most types of tape
- Hexane makes the duct tape adhesive less sticky. Xylene is faster, but the tape is way stickier and harder to handle
- Try freezing first. Then use solvent sparingly.
- Un-Do or Shandon's for tape
- Photographer's warm lights to be a great way to soften the tape and make it easier to separate. (Hold the tape up to the light(s) and slowly start to peel away)
- Depends on the tape condition: Tightly wound tape – solvent. Not tightly wound – freezing.
- Freezing for electrical tape and sometimes duct tape. Xylene or hexane for duct tape.
- 96% xylene or xylene substitute and 5% chloroform.

# After the tape is untangled, how is the tape preserved?



How is the tape routed in your laboratory? Please select 'first' for the unit that normally gets the tape first, 'second' for the next section, etc.



Were you aware of the SWGMAT guidelines accessible at [www.swgmat.com](http://www.swgmat.com)?

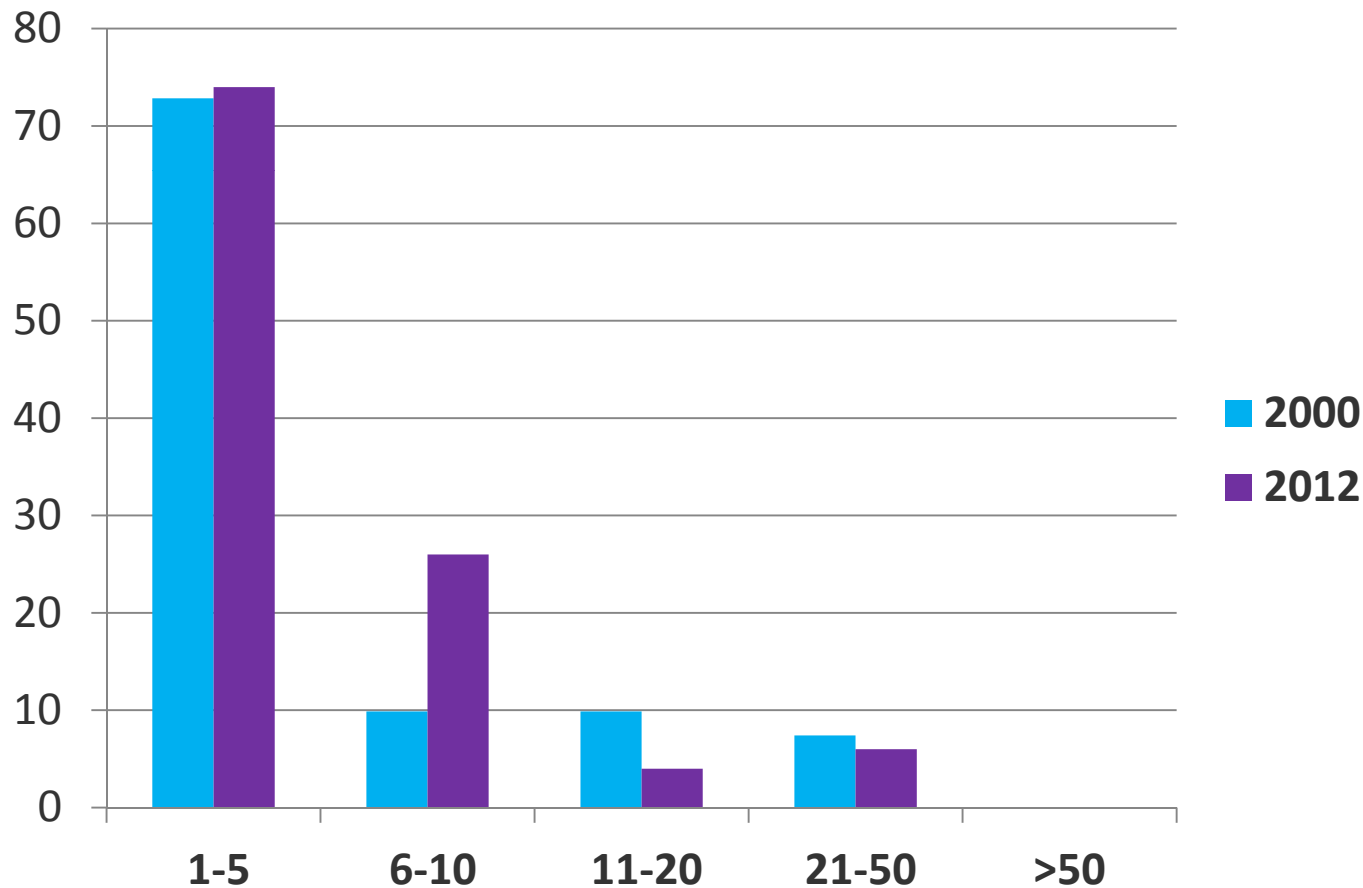
- YES 90%
- NO 10%
  - 6 % were non-US
  - 4% were US

# 2000 SWGMAT Tape Survey

- In May 2000 surveys were mailed to 320 Crime Labs who are in the ASCLD data base.
- 118 surveys were returned by the end of June, 2000.
- Of these 118 returned 29 of these labs did not do tape examinations.
- 89 labs responded that they perform forensic tape examinations.

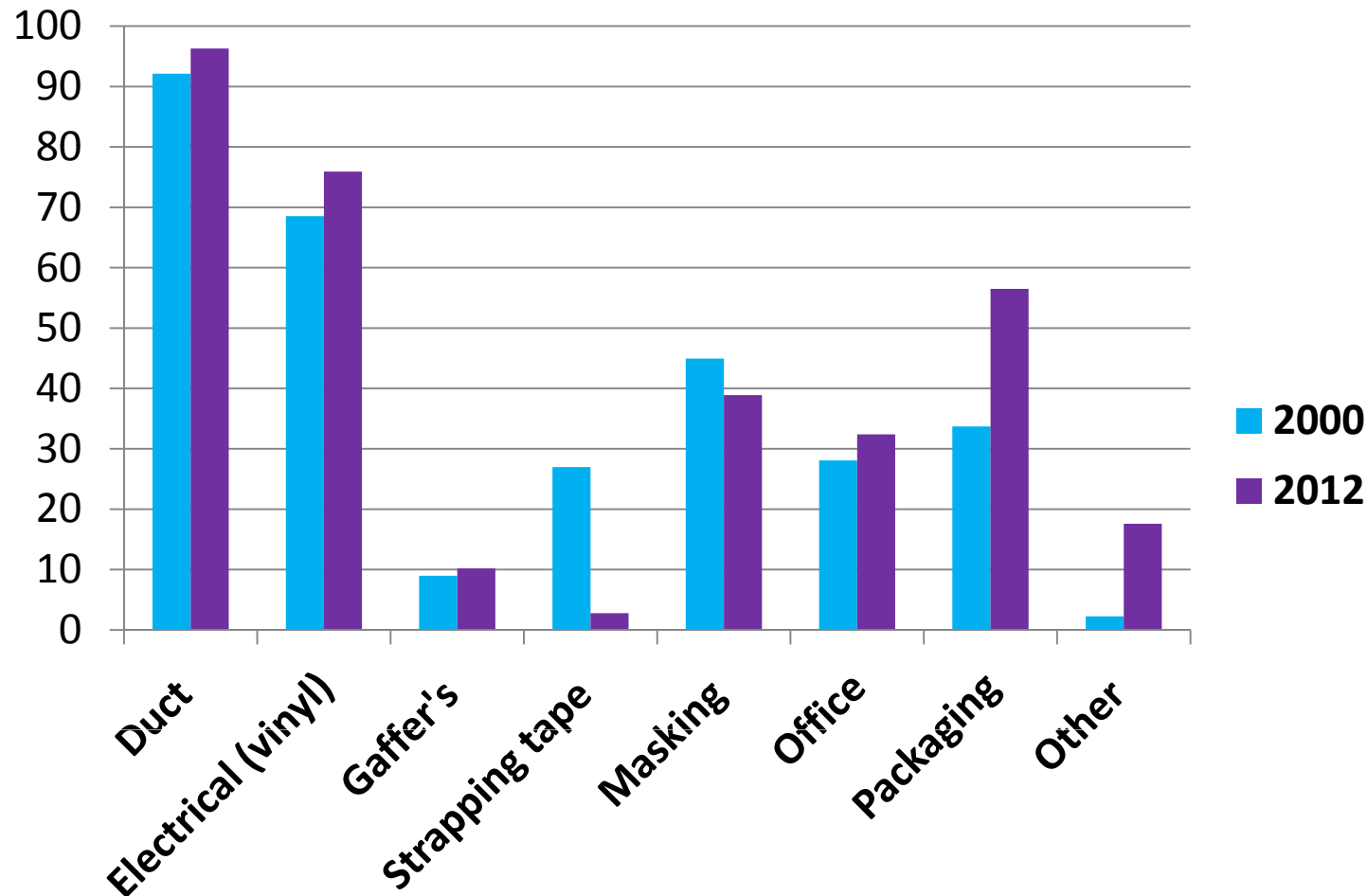
# Comparison to the 2000 Survey

- Number of tape cases analyzed per year (%):



# Comparison to the 2000 Survey

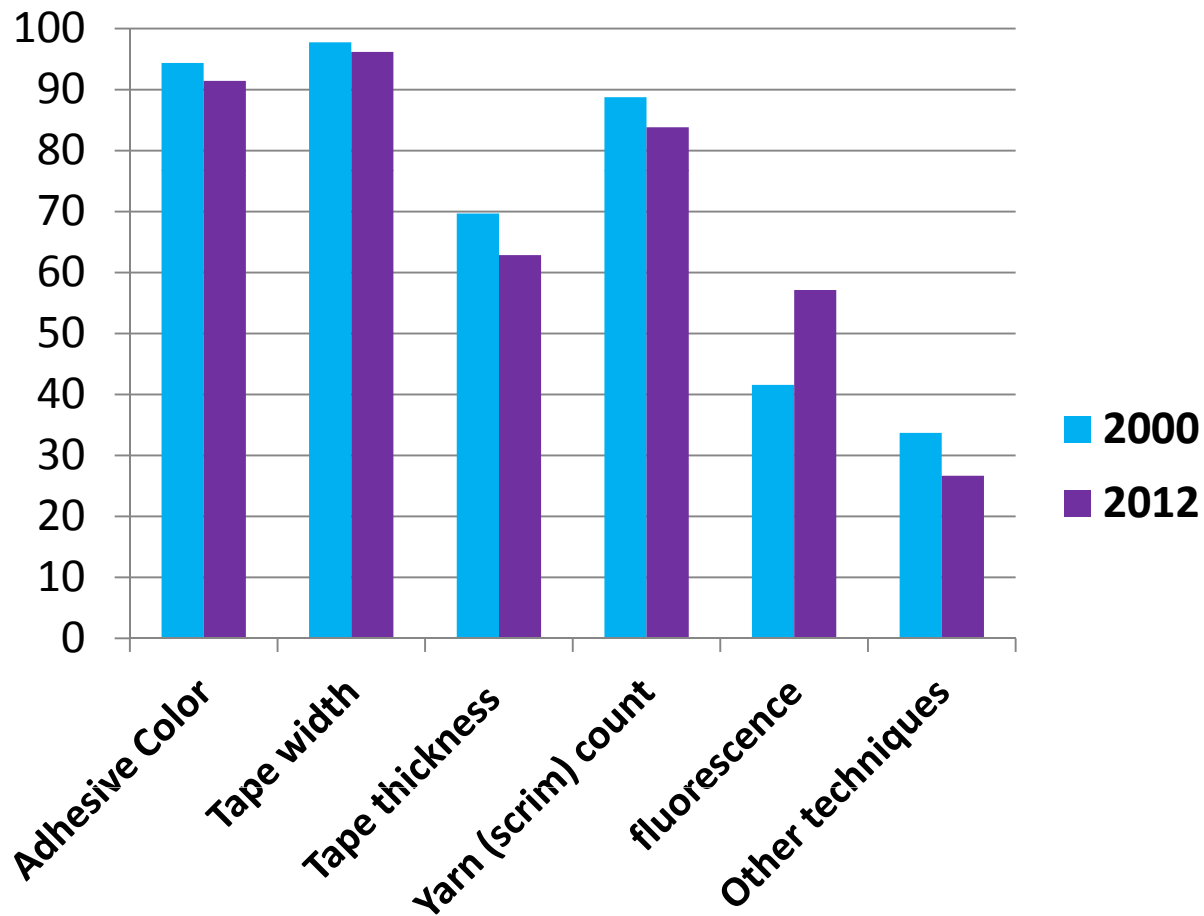
- Types of tape labs have seen (%)





# Comparison to the 2000 Survey

- “Stereoscopic exams” (2000)/ “Visual exams” (2012)



## Comparison to the 2000 Survey

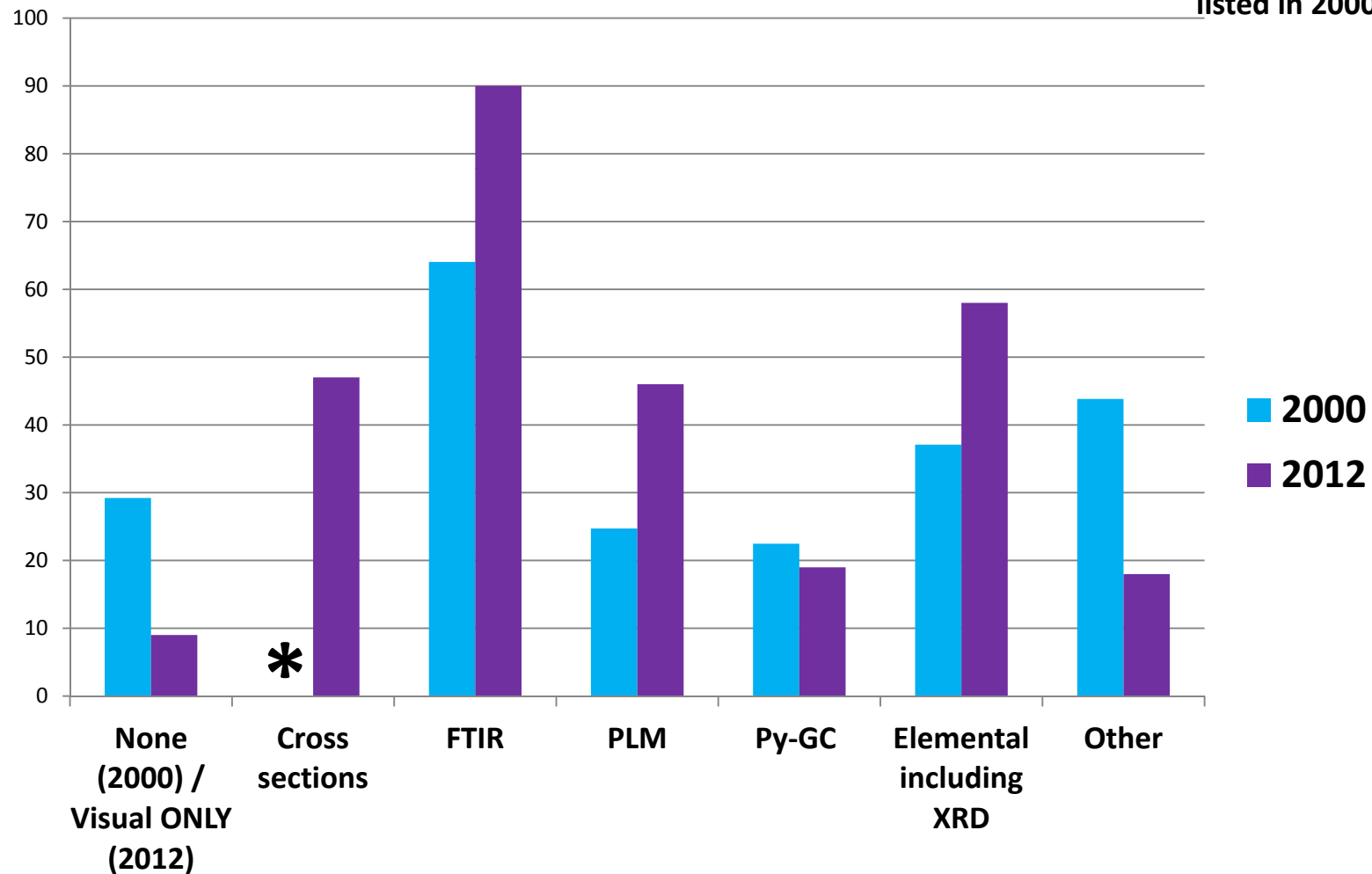
- Do you separate the backing, adhesive and fabric (if present) for further examinations?

2000:	YES	74 %	NO	26 %
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2012:	YES	84 %	NO	16 %
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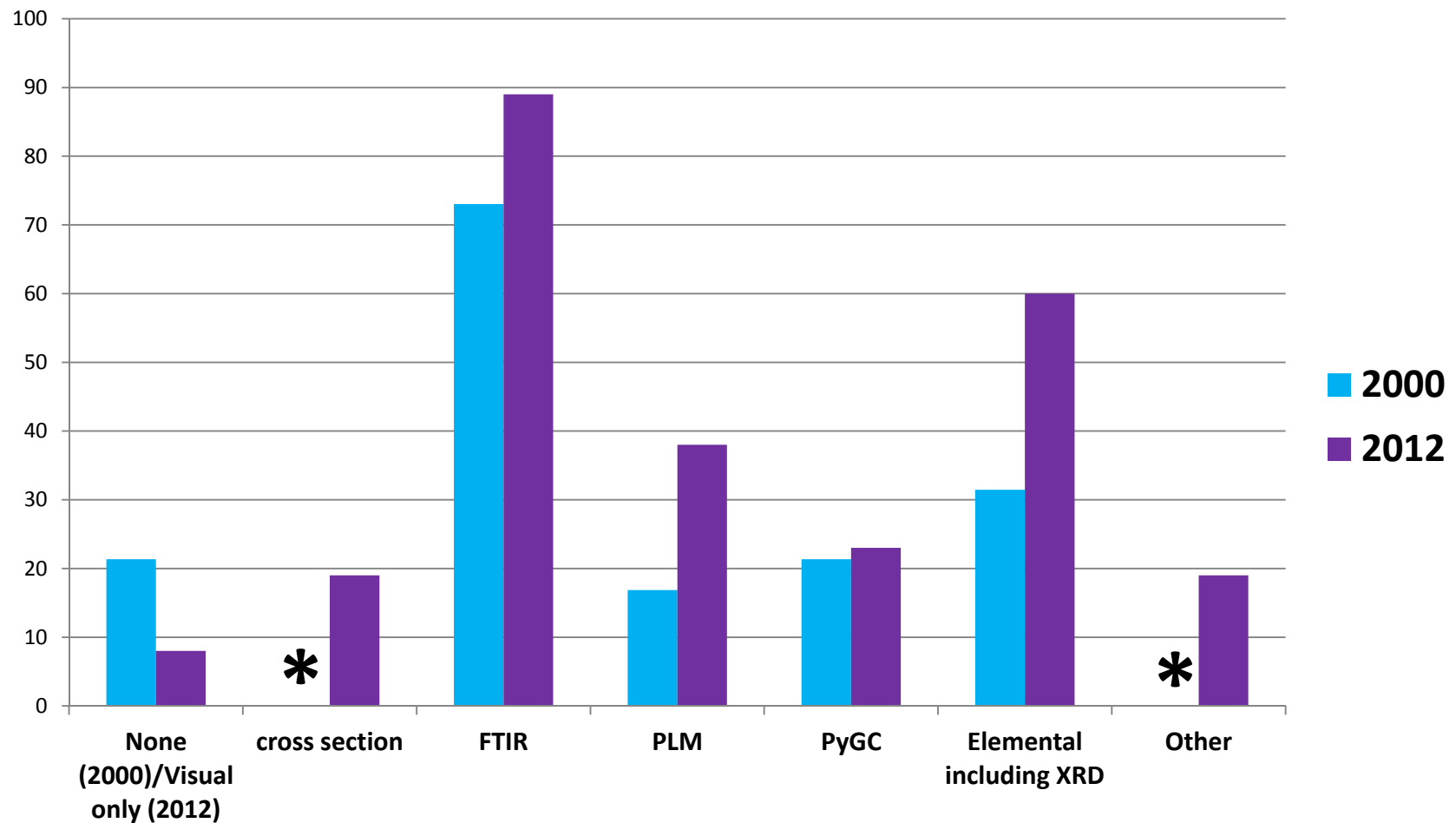
# Comparison to the 2000 Survey

- Examinations done on backing (%): \* Note – not specifically listed in 2000



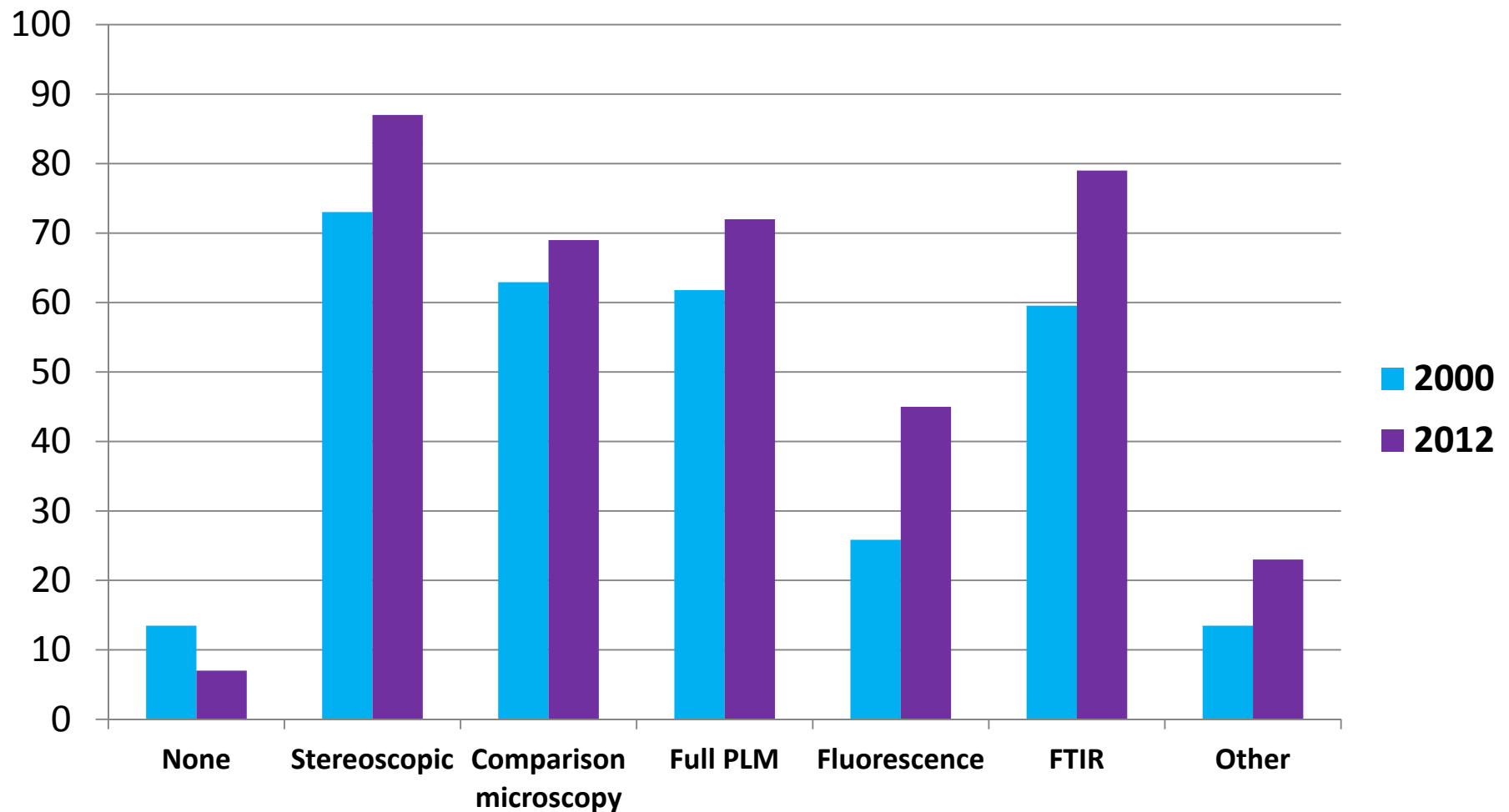
# Comparison to the 2000 Survey

- Examinations done on adhesive (%):\* Note – not specifically listed in 2000



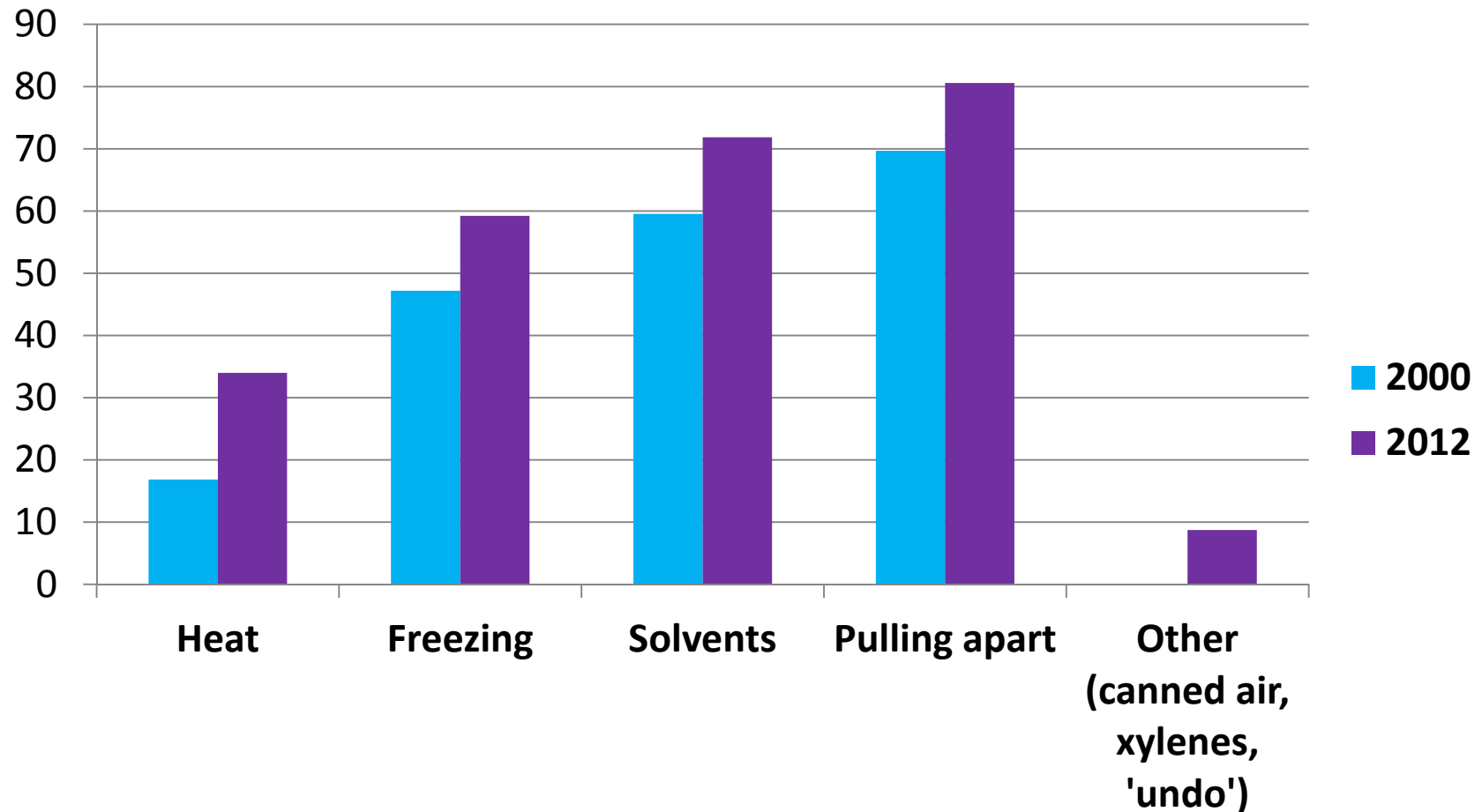
# Comparison to the 2000 Survey

- Examinations done on fibers of fabric-backed tapes (%):



# Comparison to the 2000 Survey

- Methods used to separate tape (%)



# Conclusion:

- This survey demonstrates that tape examinations continue to be utilized in forensic laboratories both in the United States as well as other countries.
- This survey also illustrates the various techniques that forensic laboratories utilize during the examination of tape evidence.

# Acknowledgements

- SWGMAT Tape group would like to thank all of the participants who completed the survey
- SWGMAT Tape group will be evaluating all recommendations for further work