

Argentium Instructor Certification

Written Examination - Level 1



ARGENTIUM[®]
THE FINEST SILVER

Argentium Instructor Certification Written Examination - Level 1

Important information

- Candidates have **1 hour** to complete all of the following 25 questions.
- Each question is worth 2 points (50 points in total).
- Please tick one box for each question ✓

Multiple choice questions

1. Argentium silver alloys owe their tarnish and firestain resistant properties to the presence of which element?

- A. Silver.
- B. Copper.
- C. Germanium.
- D. Zinc.

2. After torch annealing, Argentium silver alloys should be...

- A. Quenched into acid while still at temperature.
- B. Allowed to cool slightly, then quenched into acid.
- C. Quenched into water while still at temperature.
- D. Allowed to cool slightly, then quenched into water.

3. When torch annealing Argentium silver, it is best to carry this out in a shaded area because...

- A. Argentium silver glows a paler color than traditional sterling silver at the correct annealing temperature. A shaded area makes it easier to see if you are about to overheat the Argentium silver.
- B. Argentium silver has a very bright color at the annealing temperature and bright light hides this bright annealing color.
- C. You cannot see the torch flame in bright light and therefore cannot anneal the Argentium silver evenly.
- D. None of the above.

4. Precipitation hardening is a process that increases the optimal hardness of Argentium Original (by 20-30 HV/DPH). To achieve this, the recommended process is to heat Argentium silver in a furnace or oven, in air at...

- A. 450°C/842°F for three hours, then quench in water to rapidly cool.
- B. 300°C/572°F for two hours, then air-cool to room temperature.
- C. 550°C/1022°F for two hours, then air-cool to room temperature.
- D. 100°C/1292°F for three hours, then quench in water to rapidly cool.

5. What does 'surface passivation' refer to?

- A. Cleaning the surface of the finished piece with polishing cloths.
- B. Applying a simple heat treatment to finished pieces to promote the formation of a protective, tarnish resistant germanium oxide layer.
- C. The contamination of other metals on the surface of the finished Argentium silver piece.
- D. The reaction of the finished Argentium silver surface with harsh chemicals.

6. Which of the following describes the recommended process for surface passivation of finished Argentium silver pieces?

- A. After the pieces have received their final polishing and degreasing/cleaning operations, heat them in an oven in an air atmosphere at 200°C/392°F for 3 hours.
- B. After the pieces have received their final polishing and degreasing/cleaning operations, heat them in an oven in an air atmosphere at 300°C/572°F for 3 hours.
- C. After the pieces have received their final polishing and degreasing/cleaning operations, heat them in an oven in an air atmosphere at 100°C/212°F for 3 hours.
- D. After the pieces have received their final polishing and degreasing/cleaning operations, heat them in an oven in an air atmosphere at 400°C/752°F for 3 hours.

7. Argentium silver will fuse with...

- A. 18 karat gold (or gold finenesses above 18k).
- B. Pure (fine) silver.
- C. Platinum.
- D. All of the above.

8. Which of the following fluxes are **NOT** recommended for use with Argentium silver?

- A. 'Handy' or 'Easy Flow' type paste fluxes.
- B. My-T-Flux (supplied by Rio Grande, USA).
- C. Battern's Flux.
- D. Prip's Flux.

9. How can sagging be prevented in Argentium Original sheet during high temperature soldering applications?

- A. Heat and quench the sheet immediately.
- B. Hold the sheet in a 'third hand'.
- C. Make sure the sheet is well supported and heat evenly with a large flame to a pale red annealing temperature, then air-cool to room temperature.
- D. None of the above.

Continued on Pg. 4

10. Which answer best describes the appearance of 'under-fused' Argentium silver?

- A. The flux is still slightly brown.
- B. There is a shadow line between the two pieces.
- C. The flux has become glassy and looks like little water droplets.
- D. Both A & B.

11. Which answer best describes 'over-fused' Argentium silver?

- A. The Argentium silver has lost its form or shape because it has entered a semi-liquid state and wires or granules seem to dissolve into the base sheet.
- B. Shrinkage of the metal.
- C. The sheet has crystals growing out of the surface, which gives a gritty texture.
- D. All of the above.

12. When using an ultrasonic cleaner to remove polishing greases from Argentium silver, it is important that the cleaning solution used is...

- A. Strongly acidic (pH of 1-3).
- B. Strongly alkaline (pH of 11-14).
- C. Slightly acidic to neutral (pH 5-7).
- D. Neutral or slightly alkaline (pH 7-9).

13. The protective germanium oxide layer on the surface of a finished Argentium silver piece can be formed by?

- A. Heating the piece to a low temperature and allowing to cool to room temperature.
- B. Heating the piece to a high (annealing) temperature and quenching into water.
- C. Leaving the piece in air, so that it is exposed to oxygen at room temperature.
- D. Both A and C.

True / False questions

14. Argentium silver should be securely supported when heated.

- True
- False

15. Argentium silver glows a paler color than traditional sterling silver when at red heat.

- True
- False

Continued on Pg. 5

16. Argentium silver cools quicker than traditional sterling silver.

True

False

17. Quenching too quickly from an annealing temperature can cause Argentium silver to crack.

True

False

18. You should press hard on Argentium silver to get it to move where you want once it is red hot.

True

False

19. To minimize distortion of Argentium Original during soldering operations, it is recommended to carry out a pre-annealing step. Simply heat the sheet to a pale-red annealing temperature and allow to air-cool to room temperature.

True

False

20. Argentium silver can crack when it is moved during soldering.

True

False

21. Once Argentium silver has been soldered, the piece cannot be repositioned.

True

False

22. Once a piece has been soldered, it cannot be fused.

True

False

23. When fusing, the surface should be completely covered in flux and when soldering you only need to flux the seam.

True

False

24. Argentium silver may be un-fused and moved around or re-positioned after fusing.

True

False

Continued on Pg. 6

25. You may use the same polishing buffs for copper, gold, traditional sterling silver and Argentium silver with no problems.

- True
False

End of Written Exam - Level 1

Copyright 2012 Ronda Coryell

For all inquiries please email
info@rondacoryell.com or visit
www.rondacoryell.com