

Supplementary Information

Appendix I – Cleaning method procedures

Detailed procedures for the cleaning methods applied to empty stainless steel cups are described below. The names of the cleaning methods below are the same as the names displayed in Figure 3 and throughout the text.

Ethanol

- (1) Rinse cups with DI water
- (2) 30-minute ultrasonic bath with dish soap and DI water at room temperature
- (3) Repeat step (1)
- (4) Repeat step (2)
- (5) Repeat step (1)
- (6) Individual cleaning with ethanol

NOTE: “Ethanol” is our standard carrier cleaning method used on stainless steel cups prior to the application of our modified cleaning methods from this study.

Acetone

- (1) Follow steps (1) through (5) of ethanol sequence
- (2) Individual cleaning with acetone

Methanol

- (1) Follow steps (1) through (5) of ethanol sequence
- (2) Individual cleaning with methanol

Sand paper

- (1) Follow steps (1) through (5) of ethanol sequence
- (2) Individual scrubbing with sand paper
- (3) Wipe each cup to remove loosened residue

NOTE: “Sand paper” includes scrubbing with sand paper in addition to the standard cleaning method “Ethanol”

HF

- (1) Follow steps (1) through (5) of ethanol sequence
- (2) Etch cups for 5 min with 48% HF
- (3) Rinse with DI water
- (4) Individual cleaning with methanol

Alconox (10 min)

- (1) Rinse cups with DI water
- (2) 10-minute ultrasonic bath with Alconox and DI water at ~70°C
- (3) Repeat step (1)
- (4) Repeat step (2)
- (5) Repeat step (1)

Alconox (30 min) **and** Alconox (30 min), new cups

- (1) Rinse cups with DI water
- (2) 30-minute ultrasonic bath with Alconox and DI water at ~70°C
- (3) Repeat step (1)
- (4) Repeat step (2)
- (5) Repeat step (1)

New cups

No cleaning procedure was applied to new cups

Rust Remover

- (1) Rinse cups with DI water
- (2) 1-hour ultrasonic bath with Rust Stain Remover and DI water at room temperature
- (3) Repeat step (1)

NOTE: Rust Stain Remover contains 3 % HF

Appendix II – Cleaning method dose responses

Dose response curves are included for each cleaning method discussed throughout the text and in detail in Appendix I. The dose responses result from OSL stimulation at room temperature for 100 s after irradiation doses of 1, 10, 50, and 100 Gy.

