# SSERC logo

**SSERC Risk Assessment** (revised version March 2018)

(based on HSE’s INDG 163 ‘Risk assessment - A brief guide to controlling risks in the workplace’)

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| Activity assessed | Shape Memory Alloy |
| *Date of assessment* | 30th June 2020 |
| *Date of review (****Step 5****)* |  |
| *School* |  |
| *Department* |  |

| Step 1 | Step 2 | Step 3 | Step 4 |
| --- | --- | --- | --- |
| *List Significant hazards here:* | *Who might be harmed and how?* | *What are you already doing?**What further action is needed?* | *Actions* |
| *by whom?* | *Due date* | *Done* |
| Nickel is a sensitizerRisk no greater than handling nickel-alloy coin, therefore users need only be made aware of the fact that nickel is a sensitiser | Teachers, technicians, pupils. | Gloves can be made available to those affected. |  |  |  |
| Scald from hot water. (slight) | Teachers, technicians, pupils. | Tongs provided to remove wire from very hot water.  |  |  |  |
| Burn from electrically-heated wire when ‘training’ the metal. | Teachers, technicians, possibly pupils. | Warn users not to touch wire when current is present and for a minute afterwards (0.006 mm wire) or 2 minutes (0.8 mm wire). Jig for thicker wire labelled with warnings. |  |  |  |
| Facial / eye injury from ejecting smart wire Occurs occasionally when wire is shaped then placed in a small beaker of very hot water- as it straightens, it can fly out of the beaker.  | Teachers, technicians, pupils. | Wear eye protection. |  |  |  |

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| **Description of activity:**The wire described here is an alloy of nickel and titanium.1. A 10 cm piece of 0.8 mm smart metal is shaped by hand the dropped into very hot water. It straightens out.
2. A 20 cm piece of 0.8 mm smart wire or a 30 cm length of 0.006 mm smart wire is trained to remember a shape by being heated electrically to a high temperature for a few minutes whilst constrained in a jig. The wire is allowed to cool then is reshaped by hand. It is then placed in a trough of very hot water.
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| **Additional comments:** |