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**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 | Soil Investigation |
| *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* |
| General |
| Soil contains potentially harmful microbes. | Teachers, technicians and pupils handling soil by infection. | Ensure all cuts and grazes are covered with plasters.Wash hands thoroughly after handling soil. |  |  |  |
| Storage of soil samples could possible lead to microbial growth. | Technicians (especially) when opening sealed containers by inhalation of spores etc | While it is often desirable to collect soil samples in advance, and for the moisture content at least you would want to keep the soil in a sealed container. This risks the growth of anaerobic bacteria what could be a health hazard when opened.If being kept more than a few days, soil samples should be dried before storing. |  |  |  |
| Activity 1: Using thermometer and pH/moisture meter. Using a soil augur |
| Using thermometer and pH/moisture meter |  | No significant hazard |  |  |  |
| Using soil augur |  | Ensure there are no underground cables/pipes close enough to the surface that could be damaged. |  |  |  |
| Activity 2: permeability |
| Removing the ends off tin cans can leave sharp edges. | Teachers, learners, technicians by cuts | Try to use tins/tin/openers that do not produce sharp edges. If this is not possible, sand/grind the edges or cover over with tape. |  |  |  |
| Activity 3: pH of water samples |
| Universal indicator solution is (usually) flammable. | Technicians, teachers, learners by fire | The quantities are small and this is a very low risk. Work away from sources of ignition. |  |  |  |
| Activity 4: particle size |
| Iron III chloride is corrosive to skin and eyes. (the solution is of low hazard) | Technicians by splashes while making up dilute solution. | Wear eye protection and consider gloves. |  |  |  |
| Other flocculating agents may have hazards too. Check before use. |  |  |  |  |  |
| Activity 5: porosity |
|  |  | No significant hazard. |  |  |  |
| Activity 6: moisture content |
| Burns from hot samples when removed from the oven | Technician, teacher pupil from burns | Remove from the oven using appropriate equipment – or allow to cool in the oven before removing. Burns are unlikely to be serious. |  |  |  |
| Activity 7: density |
|  |  | No significant hazard. |  |  |  |
| Activity 8: Humus content |
| Possible burns from Bunsen burner or hot crucible, tripod etc. | Pupils (possible teacher or technicians) | Use Bunsen burners according to appropriate protocol.If at all possible leave the crucible to cool in situ. If it must be moved when hot, use a suitable pair of tongs and take care. |  |  |  |
| Hazards from inhalation of smoke  | Pupils, teachers or possible technicians by inhalation. | For most people, the risk will be negligible. Some asthma sufferers may have an attack triggered by fumes, in very rare cases anaphylaxis is possible – though the pupil will almost certainly be aware of potential allergic reactions even if not certain it will be triggered by soil.If in doubt, carry out the burning in a fume cupboard. |  |  |  |

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| **Description of activity:**A variety of short experiments are carried out on soil samples to determine various of its physical and chemical properties. |

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| **Additional comments:**Storing soils.As mentioned above, storing moist soil in a sealed container could in theory allow the growth of anaerobic microbes that could pose a health hazard. There is nothing we can find in the literature to suggest this is a significant hazard but it is a possibility.If moist soil is required for soil moisture content, either:1. Gather the soil freshly – don’t keep more than a few days.
2. Dry the soil for long term storage. Make a note of the water content (mass before and after drying) and before using in class you can moisten it with the same amount of water it originally contained.
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