

Swab sampling

1 Purpose and scope

This document provides a method for swab sampling.

Swab (or wipe) sampling can be used to detect organic and inorganic contaminants (dusts, pesticides, metals, spray drift, contaminant residues, etc.) on different surfaces. The technique is most effective on smooth surfaces such as glass, metal (including pipes), painted surfaces and smooth vegetation surfaces such as leaves. Swab sampling is less effective on surfaces that are rough and/or porous (e.g. timber and concrete).

Although there are regulatory measures of surface contamination for some contaminants (e.g. for 'PCB-free' materials), the use of wipe samples for a purpose other than detecting contaminant presence is not recommended.

2 Associated documents

Sampling design and preparation: Record keeping, including taking field photographs and videos

3 Health and safety

Before following the methods contained in this document, a detailed risk management process (identification, assessment, control and review of the hazards and risks) must be undertaken. All work carried out must comply with the Queensland Work Health and Safety legislative obligations.

4 Permits and approvals

Permits and approvals may be required to conduct activities involving animals, plants and/or in protected areas (for example National Park/Regional Park, State Forest or State Marine Park). See *Permits and approvals* document for more information on requirements.

5 Skills, training and experience

No skills, training or experience is required to conduct the procedure within this section.

6 Equipment

See Appendix 1 for example equipment checklist.

7 Procedure

7.1 Choosing the material for swab sampling

There are a variety of commercially available swab materials. Contact your laboratory supplier for recommendations on a suitable choice of swab material. When there is no time to obtain laboratory grade swabs before sampling, there are readily available materials that are suitable for use as swabs such as filter papers, small gauze pads and cotton tips. Portions of these material chosen should be uniform in all respects

and free of measurable contamination by the analytes of interest (this must be checked by analysing blank swabs). There is a higher possibility of contamination and matrix interferences using readily available materials, and therefore their use is only recommended for urgent sampling when only the presence or absence of a contaminant is analysed for.

Analytical grade solvent should be used to wet the swab or wipe. Organic solvents, such as isopropyl alcohol or hexane, are generally used. Ultrapure water is only an appropriate wetting solvent for inorganic dusts. Contact your laboratory for advice on suitable solvents for the analyte of interest.

7.2 Taking the swab sample

1. Choose a standard area to swab (minimum of 10cm²). Record the standard area.
2. Clean, powder-free gloves must be worn.
3. Pre-mark the standard area on the surface to be wiped. Caution should be used when pre-marking a surface. For example, pre-marking a surface with permanent marker and then using an organic solvent may lead to the permanent marker ink dissolving into the solvent and causing contamination. Alternatively, a pre-cut template held against the surface can be used.
4. Wet each swab with appropriate solvent. Record the solvent used.
5. Wipe the swab across the pre-marked surface from left to right using an even pressure and holding the swab flat against the surface.
6. Continue until the whole surface has been wiped (Figure 1a).
7. Re-wipe again top to bottom (Figure 1b).
8. Re-wipe again bottom left to top right (Figure 1c).
9. Re-wipe again top left to bottom right (Figure 1d).
10. Used swabs should be sealed in labelled sampling containers appropriate for the storage of the analytes of interest (e.g. a solvent-washed glass jar if pesticides are the contaminant of interest). Record the sample name, site, date and time and sampler in a notebook or equivalent.
11. If a template has been used, it must be cleaned appropriately before using it at another site.
12. A field blank should be taken by wetting the swab/s with the solvent and placing the swab in the jar.

When only trace levels of contamination are anticipated, a larger surface area should be swabbed (up to 1m²). More than one wipe may be used, and wipes can be pooled for analysis.

If plant leaves are to be swab sampled, a uniform area could be approximated by swabbing the surfaces of a fixed number of leaves of similar size at each site.

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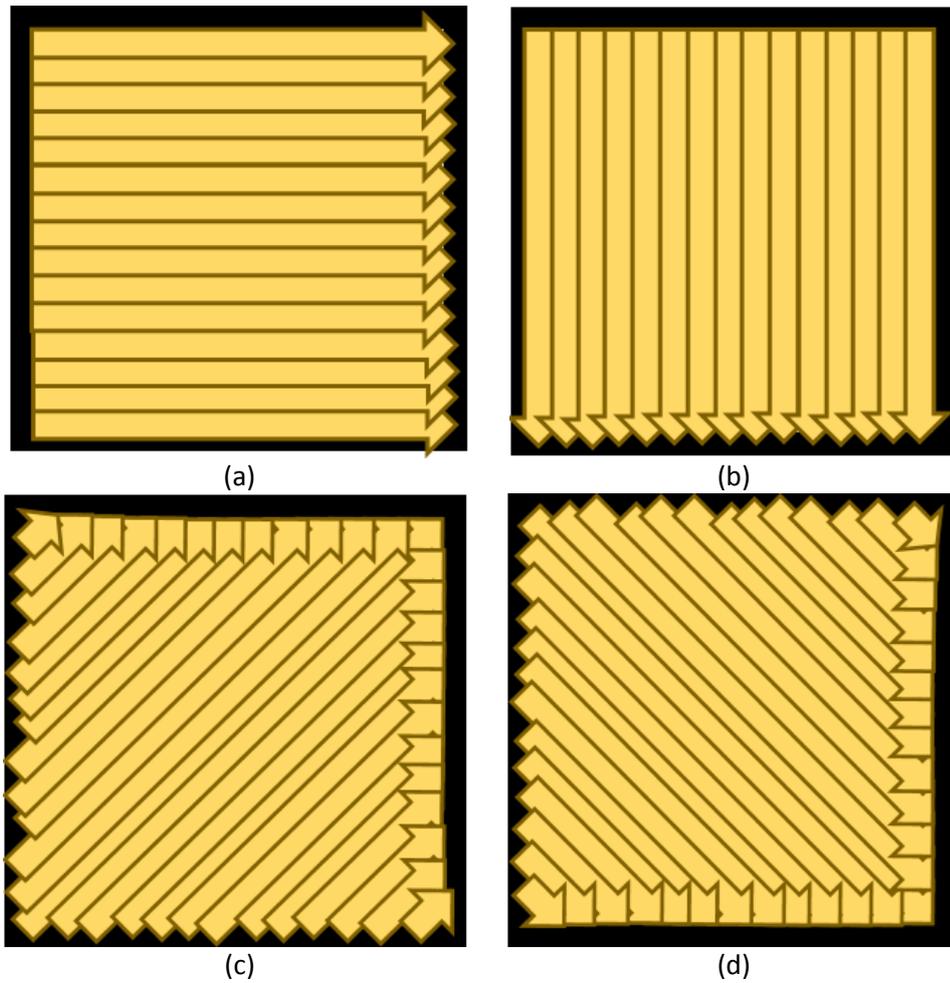


Figure 1: Example of procedure for swab sampling, with black outline indicating the pre-marked area to be swabbed, yellow arrows indicating the direction for swiping. Swabbing starts at a) swab the area from left to right, b) swab the area from top to bottom c) swab the area from bottom left to top right, and d) swab the area from top left to bottom right.

Appendix 1

Table 1: Equipment checklist

Equipment	✓
Field sheet or note book for recording data.	
Clean, powder-free gloves	
AR grade solvent of choice	
Swabbing material of choice	
Labelled sample containers made from a material appropriate to the contaminant of interest	
Commercial test kits including pre-cut templates if required	