**Smoke taint analysis**

**What analysis is available?**

Research at the AWRI has demonstrated that phenolic compounds such as guaiacol, 4-methylguaiacol, cresol and syringol are responsible for off-flavours and aromas caused by exposure to smoke.

AWRI Commercial Services is able to analyse grape, juice and wine samples for a range of volatile phenols and non-volatile smoke precursor compounds which may affect wine quality. Understanding the levels of these marker compounds in fruit and/or wine may assist with making harvesting or winemaking decisions where there is a risk of smoke taint.

**How can I assess the risk of producing smoke-affected wine?**

The AWRI recommends assessing the risk of smoke taint via a combination of analytical testing of grapes and sensory assessment of a small-scale ferment made from the same grapes. Grape samples should be submitted for analysis of volatile phenols and non-volatile smoke precursors and at the same time a small-scale ferment of potentially affected grapes should be conducted. This allows wineries to sensorially assess the wines and further determine potential risks of smoke taint. A [protocol for conducting small-scale ferments](https://www.awri.com.au) is available on the AWRI website.
How much does the analysis cost?

<table>
<thead>
<tr>
<th>Analysis type</th>
<th>Sample type</th>
<th>Cost (ex GST)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Volatile phenols + non-volatile precursors</td>
<td>wine</td>
<td>$247.00</td>
</tr>
<tr>
<td>Volatile phenols + non-volatile precursors</td>
<td>grapes</td>
<td>$295.00</td>
</tr>
</tbody>
</table>

Volume required – 500 g berries OR 100 mL wine

Please contact AWRI Commercial Services for volume pricing.

Guaiacol and 4-methylguaiacol have been emphasised as important compounds contributing to ‘smoky’ off aromas and flavours in grapes and wines; however, further research at the AWRI has shown that other volatile phenols can also play a role in the impact of bushfire smoke.

AWRI Commercial Services is able to accurately measure a group of these volatile phenols, including guaiacol, 4-methylguaiacol, syringol, 4-methylylsyringol, p-cresol, o-cresol and m-cresol in grapes, juice and wine, with sensitivity to levels below the sensory threshold. Analysis of important non-volatile precursor compounds provides further detailed information on the potential development of smoke effects.

How do I send grape sample for analysis?
The AWRI holds CA12 accreditation with Biosecurity SA, for the importation of quarantine risk material into South Australia.

For grape and juice samples from states other than South Australia:
- Samples should be accompanied by a completed AWRI Plant Material Movement Declaration Form.
- Samples should be frozen and packed in accordance with the AWRI Declaration form
- Samples sourced from Phylloxera Infested or Phylloxera Risk Zones (PIZ or PRZ) require a Plant Health Certificate (PHC) issued by the relevant local government authority.

For grape and juice samples from within South Australia:
- Samples should be refrigerated unless they are likely to take more than three days to reach the laboratory, in which case they should be frozen.
- A PHC or a Plant Material Movement and Declaration Form are not required.

Tips for sampling, packaging and transport of grapes for smoke analysis are available in this fact sheet: Grape sampling, processing and transport.

How do I pay for my analysis?
If you are an existing client of AWRI Commercial Services, you will be invoiced as normal. New clients should refer to the AWRI Commercial Services new account page for information on how to set up an account.
How long will it take to get my results?

AWRI Commercial Services has 10 working days turnaround time for the analysis from receipt of samples. If you have not received your results after the nominated turnaround time, please contact Customer Services on 08 8313 6600.

How will I receive my results?

Results are sent via email; therefore, it is important that AWRI Commercial Services has your correct details.

Who should I contact for results interpretation?

For general information on smoke taint and winemaking and viticultural strategies to limit the impact of smoke taint, visit the AWRI website smoke taint page.

For assistance in interpreting results of volatile phenol and non-volatile precursor data, please contact the AWRI helpdesk on 08 8313 6600 or helpdesk@awri.com.au. The AWRI has established a background database of volatile phenols and precursors collected from grape and wine samples that have not been exposed to smoke. This background data can be compared statistically to the results of potentially exposed fruit to determine the likelihood of the fruit or wine being smoke-tainted.

Further reading

Latest information on smoke taint on the AWRI website

Commercial Services smoke taint analysis

Contact

For further information, please contact:
Commercial Services (for sample analysis)
Phone 08 8313 6600 Fax 08 8313 6601 Email CommercialServices@awri.com.au
Website www.awri.com.au/commercial_services/analytical_services/analyses/smoke_taint/

AWRI helpdesk (to discuss technical queries)
Phone 08 8313 6600 Email helpdesk@awri.com.au

Address Wine Innovation Central Building, Corner of Hartley Grove & Paratoo Rd, Urrbrae (Adelaide), SA 5064