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Air Analytical Report

Prepared For: Jack Smith
123 Main St
Braeside, VIC 3195

Eurofins | AEML Batch: 232408

Project/Site: Sample Report

Authorised for release by:
Cimona Fernandes
Project Manager

NATA
WORLD RECOGNISED ACCREDITATION

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123 Main St
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Project Narrative

Client: Jack Smith
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Receipt

The sample(s) contained in this report were collected on March 23, 2023 and received by Eurofins Environment Testing Australia Pty Ltd on March 27, 2023 . All samples were received in good condition unless otherwise noted in the results section of this report or on the accompanying Chain of Custody.

Sample Analysis

Analyses were performed in accordance to Eurofins Environment Testing Australia Pty Ltd.'s Standard Operating Procedures and Quality Assurance Program. No deviations were made to these procedures unless noted in the results section of this report. Any additional information that the laboratory believes relevant will be noted as Data Qualifiers accompanying the sample results.

Quality Assurance

Eurofins Environment Testing Australia Pty Ltd. has developed and implemented policies and procedures that adhere to the General Requirements for the Competence of Testing and Calibration Laboratories, ISO/IEC 17025:2017.

The laboratory is staffed by highly trained and experienced professionals. Eurofins Environment Testing Australia Pty Ltd. utilises state of the art equipment that is of the most recent technology available for fungal spore identification and quantification. Eurofins Environment Testing Australia Pty Ltd. has the most up to date data systems available with capabilities to provide standard reports in hardcopy and electronic data deliverables.

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Sample Summary

Client: Jack Smith
123 Main St
Braeside, VIC 3195

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Project/Site: Sample Report

Lab Sample ID	Client Sample ID	Media	Collected	Received
232408-01	Sample 1	Air-O-Cell	23-03-2023	27-03-2023
232408-02	Sample 2	Air-O-Cell	23-03-2023	27-03-2023

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Detection Summary

Client: Jack Smith
123 Main St
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Eurofins | AEML Batch: 232408

Project/Site: Sample Report

Lab Sample ID	Client Sample ID	Spore Type	Result / Count/m^3
232408-01	Sample 1	Ascospores	213
		Aspergillus/Penicillium-Like	93
		Cladosporium	333
		Curvularia	27
		Ganoderma	40
		Smut/Myxomyces/Periconia	67
232408-02	Sample 2	Ascospores	80
		Aspergillus/Penicillium-Like	347
		Chaetomium	13
		Cladosporium	907
		Smut/Myxomyces/Periconia	53

Jack Smith
123 Main St
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Dandenong South, VIC. 3175
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Project: Sample Report

Batch: 232408

Sampled: 23/03/2023
Received: 27/03/2023
Analysis Date: 27/03/2023
Report Date: 27/03/2023

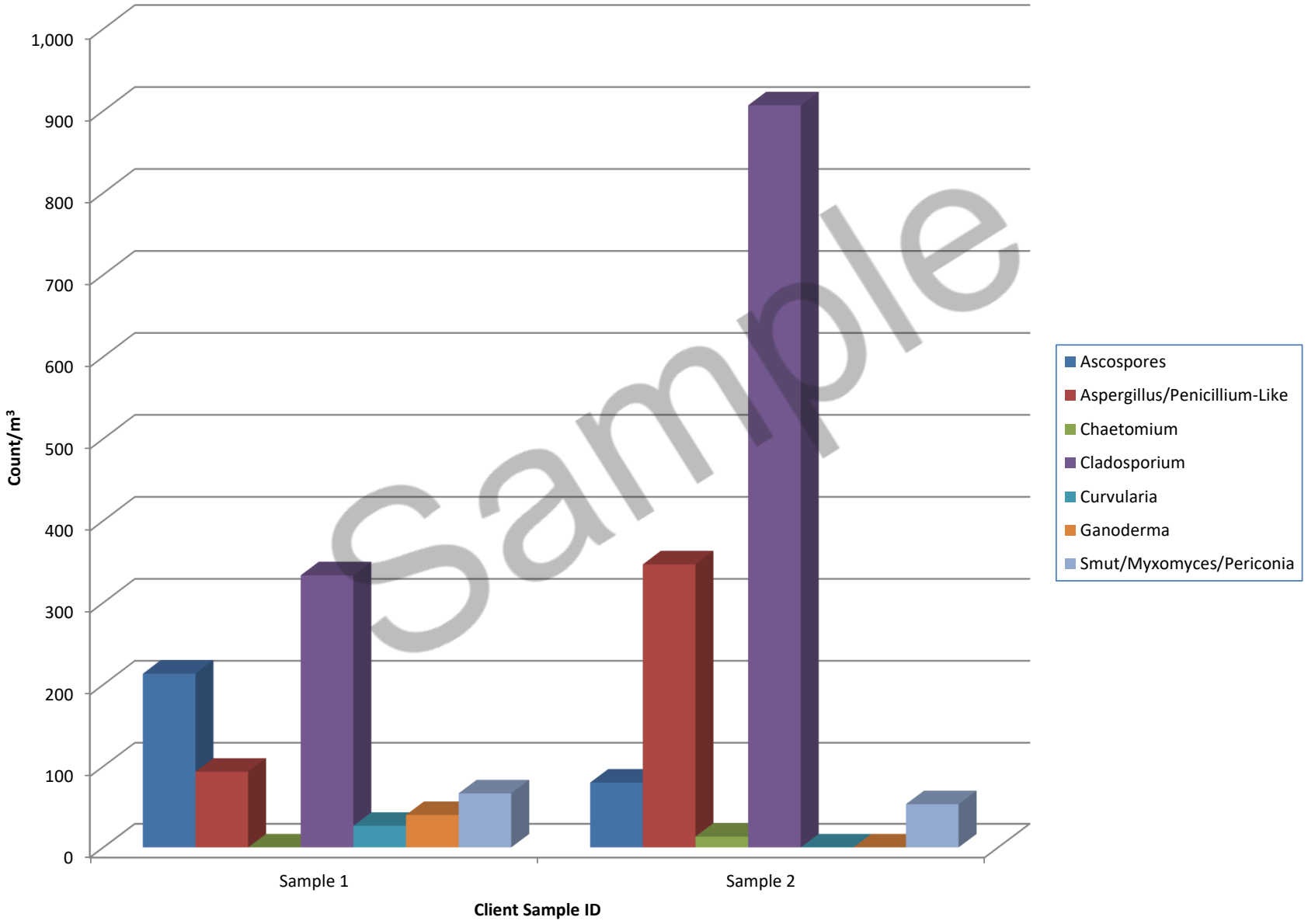
Spore Trap Analysis (AEML-DOC-18)

Sample ID:	232408-01	232408-02
Client Sample ID:	Sample 1	Sample 2
Volume Sampled (L):	75	75
Media:	Air-O-Cell	Air-O-Cell
Percent of Trace Analysed:	100% at 600X Magnification	100% at 600X Magnification

Spore Types	Raw Count	Count/m³	%	Raw Count	Count/m³	%
Alternaria	—	—	—	—	—	—
Arthrinium	—	—	—	—	—	—
Ascospores	16	213	28	6	80	6
Aspergillus/Penicillium-Like	7	93	12	26	347	25
Basidiospores	—	—	—	—	—	—
Bipolaris/Dreschlera	—	—	—	—	—	—
Botrytis	—	—	—	—	—	—
Chaetomium	—	—	—	1	13	1
Cladosporium	25	333	43	68	907	65
Curvularia	2	27	3	—	—	—
Epicoccum	—	—	—	—	—	—
Fusarium	—	—	—	—	—	—
Ganoderma	3	40	5	—	—	—
Memnoniella	—	—	—	—	—	—
Nigrospora	—	—	—	—	—	—
Oidium/Peronospora	—	—	—	—	—	—
Pithomyces	—	—	—	—	—	—
Rust	—	—	—	—	—	—
Smut/Myxomyces/Periconia	5	67	9	4	53	4
Stachybotrys	—	—	—	—	—	—
Torula	—	—	—	—	—	—
Ulocladium	—	—	—	—	—	—
Unidentified Spores	—	—	—	—	—	—
Total Spores	**58**	**773**		**105**	**1,400**	
Hyphal Fragments	—	—		—	—	
Pollen	—	—		—	—	
Debris Rating	3			3		
Detection Limit	13			13		

Cimona Fernandes
Project Manager

Project: Sample Report



Note: Graph may understate the importance of certain genre of spores.

Definitions and Glossary

Definitions

Mould - A fungus that grows in the form of multicellular filaments called hyphae. Moulds cause biodegradation of natural materials, which is necessary in nature but can become unwanted when it causes food spoilage or damage to property. Some diseases of animals and humans can be caused by certain moulds. These diseases may result from allergic sensitivity to mould spores, from growth of pathogenic moulds within the body, or from the effects of ingested or inhaled toxic compounds (mycotoxins) produced by moulds.

Fungi - A Kingdom composed of eukaryotic organisms that include unicellular microorganisms such as moulds, yeasts, smuts, and mushrooms. Fungi receive nutrients by absorbing dissolved molecules and are referred to as nature's decomposers.

Spores - Produced by moulds and fungi as units of reproduction that have adapted for dispersal. Spores can disperse through the air, by insects, animals, or humans and remain dormant on a surface for years until favourable conditions for growth occur.

Mycotoxin - A toxic secondary metabolite produced by mould. The term 'mycotoxin' is usually reserved for the toxic chemical products produced by fungi that readily colonise crops. One mould species may produce many different mycotoxins, and the same mycotoxin may be produced by several species.

Glossary

Sample ID - A unique internal identification assigned to the sample by the laboratory for traceability of the sample.

Client Sample ID - An identification given to the sample and provided to the laboratory by the person who collected the sample. This is typically the location the sample was collected.

Volume Sampled - The volume of air that was sampled displayed in litres. This is based on the flow rate of the sampling pump in Litres per minute and the time, in minutes, that the sample was collected.

Media - The device used for collection of the sample.

Percent of Trace Analysed - The percent of the trace that was analysed by the laboratory. When 100% of the trace is analysed at 600X magnification, the entire impaction area of the sample is analysed at a high level of magnification and provides the highest quality analysis.

Raw Count - Spore count present in the sample received by the laboratory.

Count/m^3 - An extrapolated count of spores that would be present in a cubic metre of air. This calculation is based on the volume of air sampled and the raw count.

Definitions and Glossary

Glossary

Percent (%) - Percent composition of the sample. This is a breakdown of the percentage of the total spore count of the sample that each spore comprises.

Debris Rating - Background debris can interfere with the analyst's ability to analyse and accurately report the counts for each analyte. Therefore, a Debris Level system of 0-5 will be reported for each sample to aid clients in their interpretation of the data.

> **Debris Level: 0** - No non-microbial particulates were observed in the impaction area. Since most air samples contain at least some debris, this indicates that the sample is either a blank sample submitted to the lab as a control, that there was an error sampling, or that a defective spore trap cassette was used.
>
> **Debris Level: 1** - A minimal amount of background particulates are present. The background debris has no effect on the reported results.
>
> **Debris Level: 2** - Non-microbial particulates are covering up to 25% of the trace.
>
> **Debris Level: 3** - Non-microbial particulates are covering 26% to 75% of the trace.
>
> **Debris Level: 4** - Non-microbial particulates are covering 76% to 90% of the trace.
>
> **Debris Level: 5** - Non-microbial particulates are covering greater than 90% of the trace. An accurate count is not possible. A range of spores is reported based on the number of spores observed in and around the borders of the trace.

Debris Levels of 2, 3, or 4 contain background debris that could mask the presence of an analyte. The higher the level of debris, the greater the chance that this could occur.

Detection Limit - Also known as Method Detection Limit. This is the minimum number of spores that would need to be present in one cubic metre of air in order for one spore to be detected by this analysis. This calculation is based on the volume of air sampled and the percent of the trace analysed.

Remediation

Remediation - The process correcting, or remedying, any issues in the building that were identified by a mould assessor. This may include cleaning or removing any contaminated material, as well as, identifying and correcting any conditions that may be favourable for mould growth.

Eurofins Environment Testing Australia Pty Ltd. makes no claims pertaining to the necessity of remediation. The results contained in this report should be used in conjunction with a physical inspection of the property to determine what, if any, actions are necessary.

Fungal Glossary

 **Typically found growing outdoors.**

 **Potential allergen.**

 **Considered water damage indicator.**

 **Potential to produce mycotoxins.**

Alternaria	
Description	Characteristics
These are a common plant pathogen involved in the decomposition of plants. In the indoor environment they are found growing on a variety of substrates including sheetrock and other building materials. They are common allergens causing hay fever or hypersensitivity reactions.	

Arthrinium	
Description	Characteristics
These are a plant pathogen found in soil and decomposing plant material. Not typically found growing indoors. One species has been determined to be an allergen.	

Ascospores	
Description	Characteristics
These are a very large group of spores that are found everywhere in nature. They are commonly found outdoors and associated with rain and moisture. Some species grow well indoors on damp materials. Ascospores have allergenic potential, however, it is species dependent.	 

Fungal Glossary

 **Typically found growing outdoors.**

 **Potential allergen.**

 **Considered water damage indicator.**

 **Potential to produce mycotoxins.**

Aspergillus/Penicillium-Like

Description	Characteristics
These are two of the most common genera in the world. They can be found everywhere in nature, both indoors and outdoors. Indoors they can be found on water damaged wallpaper, carpet, and other organic materials. They can also grow well in conditions of high humidity. Many species are allergens and a common cause of respiratory irritation. Some species are human and animal pathogens and can cause infection.	

Basidiospores

Description	Characteristics
These are primarily comprised of mushrooms and shelf fungi. They are typically found outdoors. Occasionally they are found indoors growing on any organic matter causing dry rot. Some species can be an allergen to sensitive individuals.	

Bipolaris/Dreschlera

Description	Characteristics
These are a plant pathogen typically found outdoors on grasses, grains, and decaying food. Indoors they can be found on plants and building materials. They are an allergen that can affect the nose, skin, eyes and upper respiratory track.	

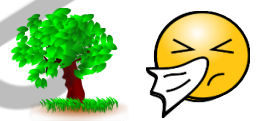
Fungal Glossary

 **Typically found growing outdoors.**

 **Potential allergen.**

 **Considered water damage indicator.**

 **Potential to produce mycotoxins.**

Botrytis	
Description	Characteristics
These are a plant pathogen typically found growing on vegetation particularly in temperate and subtropical climates. Indoors they can be found growing on plants. They are a potential allergen causing hay fever and asthma effects.	

Chaetomium	
Description	Characteristics
These are typically found indoors on water damaged cellulose containing materials such as paper, sheetrock, and wallpaper. Not well studied but possible allergen with hay fever and asthma effects.	

Cladosporium	
Description	Characteristics
One of the most common genera in both the indoor and outdoor environments. Indoors they grow well in damp environments and areas where condensation builds. They are often found on textiles, window sills, in bathrooms, and A/C systems. They are a common allergen when airborne.	

Fungal Glossary

 **Typically found growing outdoors.**

 **Potential allergen.**

 **Considered water damage indicator.**

 **Potential to produce mycotoxins.**

Curvularia	
Description	Characteristics
Primarily found outdoors on plants and soil especially in subtropical and tropical environments. Indoors they grow on a variety of building materials. They are a common allergen causing hay fever, asthma, and allergic fungal sinusitis.	 

Epicoccum	
Description	Characteristics
Outdoors they are found in the soil, air, and rotting vegetation. Indoors they grow well on a variety of building materials such as paper and textiles. They are a potential allergen with hay fever, asthma, and skin allergy effects.	

Fusarium	
Description	Characteristics
Indoors they are typically found under very wet conditions. Some places they can be found are dust in carpet and mattresses, damp walls, wallpaper, and duct liner. They are a potential allergen causing hay fever and asthma effects.	  

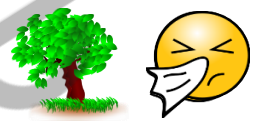
Fungal Glossary

 **Typically found growing outdoors.**

 **Potential allergen.**

 **Considered water damage indicator.**

 **Potential to produce mycotoxins.**

Ganoderma	
Description	Characteristics
These are shelf mushrooms that are typically found growing outdoors on wood causing white rot, root rot, and stem rot. They are a possible allergen at high concentrations.	

Memnoniella	
Description	Characteristics
These are mycotoxin producing spores related to and often found in conjunction with Stachybotrys. These grow well on water damaged cellulose containing building materials such as sheetrock, paper, wallpaper, and textiles.	

Nigrospora	
Description	Characteristics
These are typically found on decaying plant material and soil and are usually not found growing indoors. They are a potential allergen causing hay fever and asthma effects.	

Fungal Glossary

 **Typically found growing outdoors.**

 **Potential allergen.**

 **Considered water damage indicator.**

 **Potential to produce mycotoxins.**

Oidium/Peronospora	
Description	Characteristics
These are plant pathogens that are common obligate parasites on leaves, stems, flowers, and fruits of higher living plants.	

Pithomyces	
Description	Characteristics
These are typically found on dead leaves and stems of plants. Rarely found growing indoors; however, they grow well on paper indoors given the right conditions.	

Rust	
Description	Characteristics
These are parasitic plant pathogens that grow on plants, grass, and trees. They are rarely found growing indoors since they require a living host, and therefore typically not found on cellulose containing building materials. They are a potential allergen causing hay fever and asthma effects.	

Fungal Glossary

 **Typically found growing outdoors.**

 **Potential allergen.**

 **Considered water damage indicator.**

 **Potential to produce mycotoxins.**

Smut/Myxomyces/Periconia	
Description	Characteristics
This is a grouping of several genera organised together in a general category that are mostly associated with living and decaying plants, wood, soil, grass, cereal crops, weeds, and flowering plants. These are rarely found growing indoors. They are a potential allergen causing hay fever and asthma effects.	 

Stachybotrys	
Description	Characteristics
These are typically found indoors growing on water damaged cellulose containing building materials such as sheetrock, paper, and ceiling tiles. They are often referred to as "toxic black mould." They have the ability to produce mycotoxins which may cause a burning sensation in the mouth, throat, and nasal passages. Chronic exposure has been known to cause headaches, diarrhea, memory loss, and brain damage.	 

Torula	
Description	Characteristics
These are typically found growing outdoors on leaves, roots, wood, and soil. Indoors they can be found growing on water damaged cellulose, paper, wicker, straw baskets and ceiling tiles. They are a potential allergen causing hay fever and asthma effects.	

Fungal Glossary

 **Typically found growing outdoors.**

 **Potential allergen.**

 **Considered water damage indicator.**

 **Potential to produce mycotoxins.**

Ulocladium

Description	Characteristics
Requires very wet conditions and can commonly be found indoors in damp or wet areas such as bathrooms, kitchens, basements, and around windows. These grow well on cellulose containing materials such as paper and straw and on water damaged building material such as sheetrock. They are a common allergen causing hay fever and asthma effects.	

Unidentified Spores

Description	Characteristics
This is a grouping of spores that are unable to be categorised due to a variety of reasons. They may be weathered, disfigured, or otherwise lacking the morphological structures necessary to identify the genus.	

Hyphal Fragments

Description	Characteristics
These are branched filamentous structures with cell walls. Hyphae are somewhat analogous to stems or roots in plants whereas the spores would be analogous to the seeds. Large quantities present may indicate an active fungal colony or active fungal growth in the structure.	

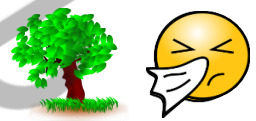
Fungal Glossary

 **Typically found growing outdoors.**

 **Potential allergen.**

 **Considered water damage indicator.**

 **Potential to produce mycotoxins.**

Pollen	
Description	Characteristics
These are a fine to course powdery substance produced by the anthers of seed-bearing plants, trees, grasses, flowers, and weeds. They are an allergen that causes hay fever effects.	

The information provided in this report is not intended to provide medical advice. This report is designed to be used for building diagnostic purposes only. Any determination of exposure or potential for exposure should be formed using the results in this report in conjunction with a physical inspection of the property. A medical professional must be consulted for any medical or health related information.

References and Links

Environmental Protection Agency (EPA) - www.epa.gov/mold/

A Brief Guide to Mould, Moisture, and Your Home - www2.epa.gov/mold/brief-guide-mold-moisture-and-your-home

Should You Have the Air Ducts in Your Home Cleaned? - www2.epa.gov/indoor-air-quality-iaq/should-you-have-air-ducts-your-home-cleaned

Flood Cleanup - Avoiding Indoor Air Quality Problems - www2.epa.gov/indoor-air-quality-iaq/flood-cleanup-protect-indoor-air-quality

Center for Disease Control and Prevention (CDC) - www.cdc.gov/mold/

General Information - www.cdc.gov/mold/basics.htm

Cleanup and Remediation - www.cdc.gov/mold/cleanup.htm

Occupational Safety & Health Administration (OSHA) - www.osha.gov/SLTC/molds

American Academy of Allergy, Asthma & Immunology (AAAAI) - www.aaaai.org

Institute of Inspection, Cleaning and Restoration Certification (IICRC) - www.iicrc.org

Information and recommendations about mould can vary based on location and climate. More information can be found through your local state's Indoor Air Quality programs. Links for some local resources can be found below:

New South Wales - www.health.nsw.gov.au/environment/factsheets/Pages/mould.aspx
Northern Territory - www.nt.gov.au/wellbeing/healthy-living/mould-growth
Queensland - www.qld.gov.au/community/disasters-emergencies/recovery-after-disaster/cleaning-up/mould
South Australia - www.sahealth.sa.gov.au/wps/wcm/connect/public+content/sa+health+internet/protecting+public+health/living+conditions+and+sanitation/household+mould
Victoria - www.betterhealth.vic.gov.au/health/conditionsandtreatments/mould-and-your-health
www.betterhealth.vic.gov.au/health/conditionsandtreatments/mould-removal-at-home
Western Australia - www.healthywa.wa.gov.au/Articles/J_M/Mould-and-dampness
New Zealand - www.building.govt.nz/resolving-problems/resolution-options/weathertight-services/signs-of-a-leaky-home/mould/
www.tenancy.govt.nz/maintenance-and-inspections/mould-and-dampness/