



EMSL Analytical, Inc.

490 Rowley Road Depew, NY 14043

Phone: (716) 651-0030

Fax: (716) 651-0394

Web: <http://www.EMSL.com>

Email: buffalolab@emsl.com

Attn: Cathy Fabiatos
Holland CSD
103 Canada St.
Holland, NY 14080

EMSL Order: 141805406
Customer ID: HCSD25
Collected: 10/10/2018
Received: 10/10/2018
Analyzed: 10/17/2018

Proj: Holland High

ASPERGILLUS/PENICILLIUM

Allergic Potential	Type I (hay fever, asthma) · Type III (hypersensitivity)
Industrial Uses	Many depending on the species
Mode of Dissemination	Wind · Insects
Natural Habitat	Plant debris · Seed · Cereal crops
Other Comments	Spores of Aspergillus and Penicillium (including others such as Acremonium, Talaromyces, and Paecilomyces) are small and spherical with few distinguishing characteristics. They cannot be differentiated or speciated by non-viable impaction sampling methods. Some species with very small spores may be undercounted in samples with high background debris.
Potential or Opportunistic Pathogens	Possible depending on the species.
Potential Toxins Produced	
Suitable Substrates in the Indoor Environment	Grows on a wide range of substrates indoors · Prevalent in water damaged buildings · Foods (blue mold on cereals, fruits, vegetables, dried foods) · House dust · Fabrics · Leather · Wallpaper · Wallpaper glue
Water Activity	Aw=0.75-0.94

BASIDIOSPORES

Allergic Potential	Type I allergies (hay fever, asthma) · Type III (hypersensitivity pneumonitis)
Industrial Uses	Edible mushrooms are used in the food industry.
Mode of Dissemination	Forcible ejection. Wind currents.
Natural Habitat	Forest floors. Lawns · Plants (saprobes or pathogens depending on genus)
Other Comments	Basidiospores are the result of sexual reproduction and formed on a structure called the basidium. Basidiospores belong to the members of the Phylum Basidiomycota, which includes mushrooms, shelf fungi, rusts, and smuts.
Potential or Opportunistic Pathogens	Depends on genus.
Potential Toxins Produced	Amanitins. monomethyl-hydrazine. muscarine. ibotenic acid. psilocybin.
Suitable Substrates in the Indoor Environment	Depends on genus. Wood products
Water Activity	Unknown.

This report has been prepared by EMSL Analytical, Inc. at the request of and for the exclusive use of the client named in this report. Completely read the important terms, conditions, and limitations that apply to this report.

© 2006, EMSL Analytical, Inc., All rights reserved. No part of this report may be reproduced or otherwise distributed or used without the express written consent of EMSL.



EMSL Analytical, Inc.

490 Rowley Road Depew, NY 14043

Phone: (716) 651-0030

Fax: (716) 651-0394

Web: <http://www.EMSL.com>

Email: buffalolab@emsl.com

Attn: Cathy Fabiatos
Holland CSD
103 Canada St.
Holland, NY 14080

EMSL Order: 141805406
Customer ID: HCSD25
Collected: 10/10/2018
Received: 10/10/2018
Analyzed: 10/17/2018

Proj: Holland High

CLADOSPORIUM	
Allergic Potential	Type I (asthma and hay fever).
Industrial Uses	Produces 10 antigens.
Mode of Dissemination	Air
Natural Habitat	Dead plant matter. Straw. Soil. Woody plants
Potential or Opportunistic Pathogens	Edema. keratitis. onychomycosis. pulmonary infections. Sinusitis.
Potential Toxins Produced	Cladospurin and Emodin.
Suitable Substrates in the Indoor Environment	Fiberglass duct liner. Paint. Textiles. Found in high concentration in water-damaged building materials.
Water Activity	Aw 0.84-0.88

CURVULARIA	
Allergic Potential	Hay fever, asthma, allergic fungal sinusitis
Free moisture required for mold growth	Unknown
Mode of Dissemination	Wind
Natural Habitat	A worldwide saprophytic fungi, being isolated from dead plant material and soil.
Potential or Opportunistic Pathogens	In immunocompromised patients can cause cerebral abscess, endocarditis, mycetoma, ocular keratitis, onychomycosis, and pneumonia.
Suitable Substrates in the Indoor Environment	Paper, wood products

EPICOCCUM	
Allergic Potential	Hay fever, asthma
Mode of Dissemination	Wind
Natural Habitat	A worldwide saprophytic fungi, being isolated from dead plant material and soil.
Potential or Opportunistic Pathogens	Unknown
Suitable Substrates in the Indoor Environment	Paper, textiles
Water Activity	0.86-0.90

This report has been prepared by EMSL Analytical, Inc. at the request of and for the exclusive use of the client named in this report. Completely read the important terms, conditions, and limitations that apply to this report.

© 2006, EMSL Analytical, Inc., All rights reserved. No part of this report may be reproduced or otherwise distributed or used without the express written consent of EMSL.



EMSL Analytical, Inc.

490 Rowley Road Depew, NY 14043

Phone: (716) 651-0030

Fax: (716) 651-0394

Web: <http://www.EMSL.com>

Email: buffalolab@emsl.com

Attn: Cathy Fabiatos
Holland CSD
103 Canada St.
Holland, NY 14080

EMSL Order: 141805406
Customer ID: HCSD25
Collected: 10/10/2018
Received: 10/10/2018
Analyzed: 10/17/2018

Proj: Holland High

GANODERMA	
Allergic Potential	Ganoderma species are known to cause allergies in people on a worldwide scale.
Industrial Uses	Biopulping of wood for the paper industry. Potential medicinal use due to: 1. Inhibition of Ras dependent cell transformation, 2. Antifibrotic activity, 3. Immunomodulating activity, 4. Free-radicle scavenging
Mode of Dissemination	Wind.
Natural Habitat	Grows on conifers and hardwoods worldwide, causing white rot, root rot, and stem rot.
Other Comments	Used in traditional Chinese medicine as an herbal supplement. It is also known as a "shelf fungus" because the fruiting body forms a stalk-less shelf on the sides of trees and logs. It is sometimes called "artists conk" because when you scratch the white pores of the fruiting body, the white rubs away and exposes the brown hyphae underneath. Thus, pictures can be produced on the fruiting body.
Potential or Opportunistic Pathogens	Unknown.
Potential Toxins Produced	
Reference	References: Craig, R.L., Levetin, E. 2000. Multi-year study of Ganoderma aerobiology. Aerobiologia 16: 75-81. http://www.pfc.forestry.ca/diseases/CTD/Group/Heart/heart6_e.html
Suitable Substrates in the Indoor Environment	Unknown.
Water Activity	

MYXOMYCETES++	
Allergic Potential	Type I
Free moisture required for mold growth	Unknown
Industrial Uses	
Mode of Dissemination	Insects, Water, Wind
Natural Habitat	Decaying logs, Dead leaves , Dung , Lawns , Mulched flower beds, Lawns
Other Comments	Includes Myxomycetes, Smut, and Periconia.
Potential or Opportunistic Pathogens	Unknown
Suitable Substrates in the Indoor Environment	Rotting lumber

This report has been prepared by EMSL Analytical, Inc. at the request of and for the exclusive use of the client named in this report. Completely read the important terms, conditions, and limitations that apply to this report.

© 2006, EMSL Analytical, Inc., All rights reserved. No part of this report may be reproduced or otherwise distributed or used without the express written consent of EMSL.



EMSL Analytical, Inc.

490 Rowley Road Depew, NY 14043

Phone: (716) 651-0030 Fax: (716) 651-0394

Web: <http://www.EMSL.com>

Email: buffalolab@emsl.com

Attn: Cathy Fabiatos
Holland CSD
103 Canada St.
Holland, NY 14080

EMSL Order: 141805406
Customer ID: HCSD25
Collected: 10/10/2018
Received: 10/10/2018
Analyzed: 10/17/2018

Proj: Holland High

5. References and Informational Links

This report has been prepared by EMSL Analytical, Inc. at the request of and for the exclusive use of the client named in this report. Completely read the important terms, conditions, and limitations that apply to this report.

© 2006, EMSL Analytical, Inc., All rights reserved. No part of this report may be reproduced or otherwise distributed or used without the express written consent of EMSL.



EMSL Analytical, Inc.

490 Rowley Road Depew, NY 14043

Phone: (716) 651-0030

Fax: (716) 651-0394

Web: <http://www.EMSL.com>

Email: buffalolab@emsl.com

Attn: Cathy Fabiatos
Holland CSD
103 Canada St.
Holland, NY 14080

EMSL Order: 141805406
Customer ID: HCSD25
Collected: 10/10/2018
Received: 10/10/2018
Analyzed: 10/17/2018

Proj: Holland High

Books

- Bioaerosols: Assessment and Control. Janet Macher, Ed., American Conference of Governmental Industrial Hygienists, Cincinnati, OH 1999.
- Exposure Guidelines for Residential Indoor Air Quality. Environmental Health Directorate, Health Protection Branch, Health Canada, Ottawa, Ontario, 1989.
- Fungal Contamination in Public Buildings: Health Effects and Investigation Methods. Health Canada, Ottawa, Ontario, 2004.
- IICRC: S500 Standard and Reference Guide for Professional Water Damage Restoration. 3rd Edition, Institute of Inspection, Cleaning, and Restoration Certification, Vancouver, WA, 2006

IICRC: S520 Standard and Reference Guide for Professional Mold Remediation. 1st Edition, Institute of Inspection, Cleaning, and Restoration Certification, Vancouver, WA, 2004

- Field Guide for the Determination of Biological Contaminants in Environmental Samples. 2nd Edition, American Industrial Hygiene Association, 2005.

Consumer Links

Read the full text of AIHA's "The Facts About Mold" consumer brochure.

<http://www.aiha.org/get-involved/VolunteerGroups/Documents/BiosafetyVG-FactsAbout%20MoldDecember2011.pdf>

The Occupational Safety and Health Administration (OSHA)

<http://www.osha.gov/SLTC/molds/index.html>

CDC Mold Facts

<http://www.cdc.gov/mold/faqs.htm>

CDC Stachybotrys - Questions and answers on Stachybotrys chartarum and other molds

<http://www.cdc.gov/mold/stachy.htm>

IOM, NAS: Clearing the Air: Asthma and Indoor Air Exposures

<http://www.iom.edu/Reports/2000/Clearing-the-Air-Asthma-and-Indoor-Air-Exposures.aspx>

National Library of Medicine-Mold website

<http://www.nlm.nih.gov/medlineplus/molds.html>

California Department of Health Services (CADOHS)

This report has been prepared by EMSL Analytical, Inc. at the request of and for the exclusive use of the client named in this report. Completely read the important terms, conditions, and limitations that apply to this report.

© 2006, EMSL Analytical, Inc., All rights reserved. No part of this report may be reproduced or otherwise distributed or used without the express written consent of EMSL.



EMSL Analytical, Inc.

490 Rowley Road Depew, NY 14043

Phone: (716) 651-0030 Fax: (716) 651-0394

Web: <http://www.EMSL.com>

Email: buffalolab@emsl.com

Attn: Cathy Fabiatos
Holland CSD
103 Canada St.
Holland, NY 14080

EMSL Order: 141805406
Customer ID: HCSD25
Collected: 10/10/2018
Received: 10/10/2018
Analyzed: 10/17/2018

Proj: Holland High

of tort, contract or any other legal or equitable theory, in excess of the amount paid to EMSL by client thereunder.

E. Indemnification

Client shall indemnify EMSL and its officers, directors and employees and hold each of them harmless for any liability, expense or cost, including reasonable attorney's fees, incurred by reason of any third party claim in connection with EMSL services, the test result data or its use by client