

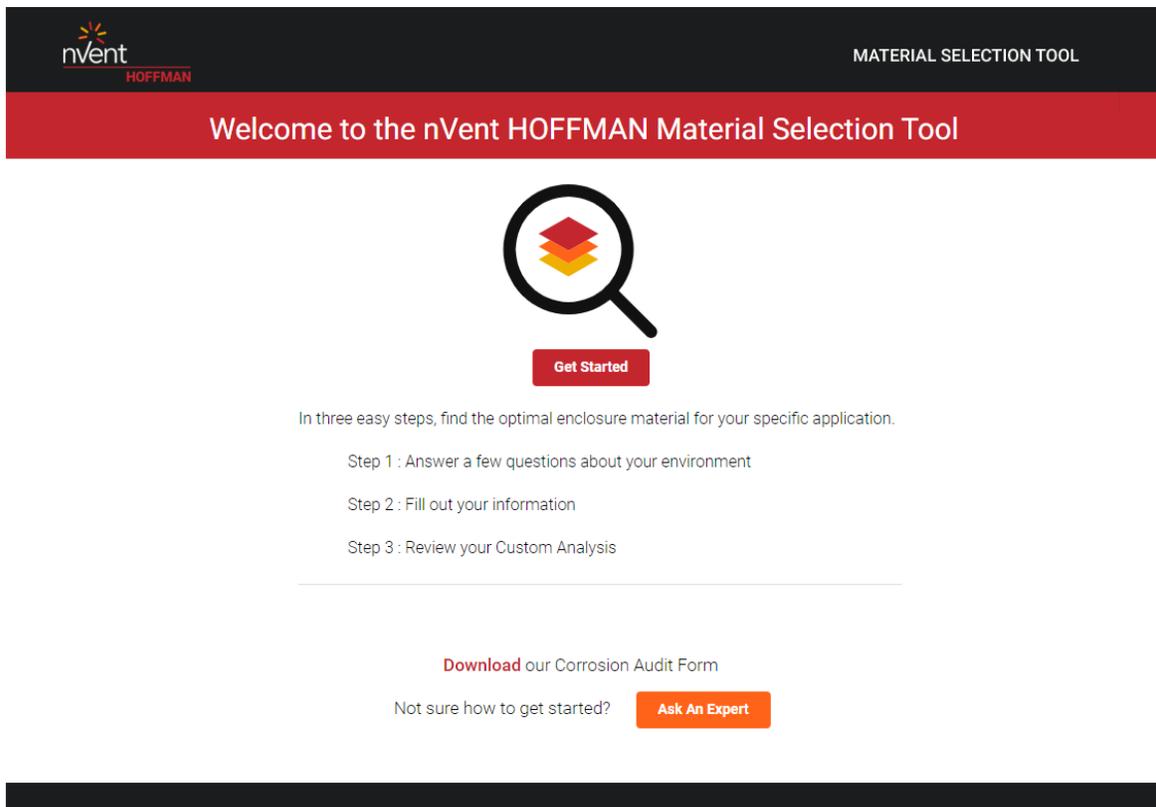
## Material Selection Tool Tutorial

Scenario:

- You are working with a customer that has a food baking process/operation within their plant.
- Some of their enclosures are failing prematurely, and they want to investigate the issue before replacing the existing enclosures on their upcoming scheduled down-day for maintenance.
- You've been told by your customer that in the specific problem area, Ammonium Chloride (a yeast nutrient in bread-making) gets directly on the enclosures at times. There is also Aluminum Sulfate (a firming agent for food starches) used in the area.
- Your customer further explains that the area remains at room temperature year-round, it doesn't receive washdown, and is kept relatively dry (low humidity).

**Follow these Material Selection Tool steps to obtain a solution for your customer:**

1. Go to [materialelection.nvent.com](http://materialelection.nvent.com)
2. Click the red "Get Started" button toward the center of the screen



The screenshot shows the homepage of the nVent HOFFMAN Material Selection Tool. At the top left is the nVent HOFFMAN logo, and at the top right is the text "MATERIAL SELECTION TOOL". A large red banner across the top contains the text "Welcome to the nVent HOFFMAN Material Selection Tool". Below the banner is a magnifying glass icon over a red and yellow diamond shape, with a red "Get Started" button underneath. Below the icon, the text reads "In three easy steps, find the optimal enclosure material for your specific application." followed by three steps: "Step 1 : Answer a few questions about your environment", "Step 2 : Fill out your information", and "Step 3 : Review your Custom Analysis". At the bottom, there is a link to "Download our Corrosion Audit Form" and a red button labeled "Ask An Expert" next to the text "Not sure how to get started?".

- Enter Temperature, Humidity, Direct Contact Chemicals, and Ambient Contact Chemicals, in the fields circled in green below:

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HOFFMAN

MATERIAL SELECTION TOOL

DATA ENTRY      AUDIT DETAILS      FINDINGS REPORT

SELECT THE TEMPERATURE, HUMIDITY, AND THE CHEMICALS THAT WOULD HAVE A DIRECT OR INDIRECT CONTACT WITH THE MATERIAL BEING EVALUATED

**TYPICAL AMBIENT TEMPERATURE:**  
65-80°F (18-27°C)

**HUMIDITY:**  
Low (<25% RH)

**DIRECT OR SPLASH CONTACT CHEMICALS:**  
Create a list of chemicals below from the dropdown menu, that will have either **direct contact** or could have **splash contact** with the material being evaluated

**AMBIENT OR INDIRECT CONTACT CHEMICALS:**  
Create a list of chemicals below from the dropdown menu, that are **used in the vicinity** of this application and/or will have **ambient contact** with the material from nearby vaporization, etc.

Ammonium Chloride (10% Soln)      Aluminum Sulfate (10% Soln)

**NOTES:**

- To get the most accurate material guidance with this tool, be mindful that if a chemical is used within 50 yards of the application site, where the fluid is open to the environment, it will very likely be present in the area in ambient form. Be sure to include these chemicals in the Ambient data entry section.
- If there are more chemistries in the area, than there are in the dropdown, please enter the elements that have the highest concentrations or most contact for your application.
- The concentrations used for testing are listed next to some of the chemicals for reference to use when making your final material selection.

Ask An Expert      Next >

- Click the red “Next” button in the bottom right corner
- Enter the information for the report template as you see below:

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HOFFMAN

MATERIAL SELECTION TOOL

DATA ENTRY      AUDIT DETAILS      FINDINGS REPORT

\* Denotes a required field

**\* REPORT DATE:**  
June 3, 2019

**\* INDUSTRY:**  
Food/Beverage/Pharmaceuticals/Medical

**\* CREATED FOR:**  
Dana      Myers

**\* E-MAIL:**  
dana.myers@nvent.com

**\* ZIP CODE:**  
55303

**SITE OF AUDIT:**  
Starch Room

**SITE AUDIT CONTACT:**  
Ms. Suzy Customer

Ask An Expert      < Previous      Next >

6. Click the red “Next” button in the bottom right corner
7. You’re finished! Your report will then be generated in the format you see below. It will include the name and information you entered, and is ready to share with your customer. You can use the icons at the center top to save a pdf of the report, print it, email it, etc.

MATERIAL SELECTION TOOL

DATA ENTRY AUDIT DETAILS FINDINGS REPORT





Date: June 3 , 2019  
Created For: Dana Myers  
Site Name: Starch Room

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## MATERIAL SELECTION DATA GIVEN

**TYPICAL AMBIENT TEMPERATURE:**

65-80°F

**DIRECT CONTACT CHEMICALS**

1. Ammonium Chloride (10% Soln)

**HUMIDITY:**

Low

**INDIRECT CONTACT CHEMICALS**

1. Aluminum Sulfate (10% Soln)

## MATERIAL SELECTION FINDINGS

Based on the information given, the following is a report of guidance for materials and product families that are part of Hoffmans Standard Product Offering.

\*If you don't see the recommended material in the size/shape of enclosure you'd like; contact your Hoffman Rep. We can do a variety of custom and modified solutions to fit your specific needs.

**ENCLOSURE MATERIAL EVALUATION:**

Click on the material name below to view our product offerings	Recommended	Satisfactory	Limited Use	Not Recommended
Mild Steel				
304 Stainless Steel				
316L Stainless Steel				
Aluminum				
Polycarbonate				
Polyester				
Fiberglass, Compression				
Fiberglass, Spray-Up				
ABS				

**DEFINITIONS:**

- Recommended:** Limited to No Affect by chemical; Limited to no deterioration
- Satisfactory:** Very little effect; reduced aesthetics probable over time
- Limited Use:** Chemical attack probable with slow deterioration
- Not Recommended:** Severe attack is imminent; rapid deterioration

**\*\* If all materials are shown above as "Not Recommended", that means based on the data entered, this application is quite prone to unique corrosion challenges and should be reviewed in more detail by a member of our technical team to provide material selection guidance. Please email your inquiry to Hoffman@nVent.com for a detailed review of your application needs.**

**Other Key Decision Factors:**

**Humidity:**

With a lower level of humidity, the corrosive reactions from this environment will potentially occur at a slower rate than more humid areas.

**Temperature:**

Temperatures in this range will begin to create an environment conducive to corrosion. If your application also has medium to high levels of humidity, the speed of corrosion begins to increase at a higher rate.

**ADDITIONAL MATERIALS:**

	Recommended	Satisfactory	Limited Use	Not Recommended
WINDOW KITS				
Acrylic Clear Sheet				
Acrylic Molded				
Polycarbonate Clear Sheet				
Polycarbonate, Silicone Coated				
UNCOMMON ENCLOSURE MATERIALS				
Fiberglass, Pultruded				
Polyester (PBT Glass Reinforced)				
Monel				
MILD STEEL TREATMENTS				
Cadmium Plate with Chromate				
Epoxy Powder Coat, Painted				
Enamel, Machinery, Over Prime, Painted				
Galvanized, G-90				
Grey Prime, Over Phosphate, Painted				
Polyurethane Painted				

**DEFINITIONS:**

- Recommended:** Limited to No Affect by chemical; Limited to no deterioration
- Satisfactory:** Very little effect; reduced aesthetics probable over time
- Limited Use:** Chemical attack probable with slow deterioration
- Not Recommended:** Severe attack is imminent; rapid deterioration

**NOTES:**

1. This tool is to be used as a guide in your decision process of material selection.
2. As the designer it is important to take into consideration a number of other parameters for your specific application not included in this tool such as system upset conditions, frequency of system upsets, chemical concentrations, enclosure cleaning and maintenance schedules, location of install, as well as many other environmental variables.
3. This tool is intended to be used as a guiding component of your overall enclosure material decision process, where the designer also takes into consideration the additional variables like those listed above before making their final material decision.

## What is the report telling me?

1. Based on the findings of this report and the information entered, it would be recommended to utilize either Polycarbonate, Polyester, or ABS enclosure materials. Satisfactory options would include 316L Stainless steel and Fiberglass. Other design criteria to be determined by the customer, such as size, latching, UL/NEMA ratings, etc., will further refine the product selection.
2. On the website, clicking on the enclosure material name will automatically open the product website that includes that material to continue the product selection.

Still have questions? Does your report only show 'Not Recommended' for each material type? This is where it is best to seek out some additional help from one of our experts. Feel free to click on the "Ask the Expert" button at the bottom of the report, fill out the form with the information requested, and either myself or a member of our team will contact you to assist! Each environment is unique and can be quite challenging. There are some unique things we can do to help; lean on our years of experience. We will perform any further required analysis to determine the best material for your harsh environment.

Thank you for taking a moment to learn more about our material selection tool! If you have further questions, or would like more in-depth training on the topic of material selection, feel free to reach out at any time. We're here to help!

Regards,

Dana Myers

Global Product Manager: Sanitary Stainless, Hazardous Location, and Aluminum products

[dana.myers@nvent.com](mailto:dana.myers@nvent.com)