MOLD ABATEMENT POLYMER SOLUTIONS

A Unique Product Formulation Derived from a Series of SMART Polymers
SMART Polymers are comprised of unique and proprietary formulations based on ionic ligands, organic acids, and natural products dissolved or suspended in a water-soluble gel-type matrix.

These SMART Polymers exhibit rheological characteristics and will continuously adapt to changing hydrophilic/hydrophobic ambient conditions over wide temperature fluctuations.
MAPS-1 is an EPA approved quaternary amine based fungicide specifically selected for its compatibility with MAPS-2.

MAPS-2 is a unique SMART Polymer containing a synergistic balance of time-released Surface Stabilizing ingredients.
MAPS-1 Mechanism of action:
Structure and function disruption.

- Quaternary ammonium compounds (quats) are some of the most widely used disinfectants today because of their broad spectrum effectiveness.

- Quaternary ammonium compounds work by denaturing the proteins of the bacterial or fungal cell, affecting the metabolic reactions of the cell and causing vital substances to leak out of the cell, causing death.

- Because quats are a charged particle, something to consider is "quat absorption," which is when quat molecules are attracted and bound to anionic — negatively charged — fabric surfaces. For example, the concentration of the quat a pail of MAPS-1 could be reduced by as much as half after a cotton wipe is placed in the solution and allowed to soak for 10 minutes.

- Quat absorption occurs in cotton terry cloth as well as in microfiber cloth.

- Microfiber appears to be superior to cotton terry cloth in accounting for quat absorption, cleaning and disinfection efficacy, as well as in preventing organism transfer to clean surfaces.
MAPS-2 is a surface-active SMART Polymer specifically formulated for in-situ use on a myriad of substrates.

MAPS-2 will form a colorless ultra-thin skin that will protect surface intrusions from air or water-borne spores for an extended period of time.

MAPS-2’s outstanding long term durability and efficacy is derived from the fine synergistic chemical balance of specialized ingredients formulated to compliment the polymer matrix.

MAPS-2 exhibits time-release characteristics predicated by ambient and atmospheric conditions.
MAPS-2 POLYMER ENCAPSULATION

MAPS-2 INGREDIENTS

SMART Polymer
MAPS-2 Monomers form a water soluble SMART Polymer gel.

Each individual compatible component is encapsulated or dissolved within the larger SMART Polymer gel structure.

MAPS-2 in itself may serve as a physical antagonistic barrier limiting contact from airborne pathogens with the target substrate.
MAPS-2 IS A SURFACE BARRIER

SMART Polymer Hydrophobic/Hydrophilic Surface Bonded to the Substrate
MAPS-2 IS A SURFACE STABILIZER

SMART Polymer Hydrophobic/Hydrophilic Surface Bonded to the Substrate
MAPS PETRY-DISH TEST PROTOCOL

- An Agar plate a) is coated with the Targeted Fungi b). In this case there are two Fungi species being tested.
- Test Squares c) are cut from filter paper and each are dipped into a unique candidate antimicrobial formulation. In this case 7 candidate samples were chosen and placed into the dish for each of the Targeted Fungi.
- The dish is then placed into an incubator e) at 35°C and 90% humidity for 48 hours. During this time the Fungi will grow as the Agar provides a nutrient to the fungus.
- Examination of each individual Test Square c) will reveal how the targeted antimicrobial reacts with the growing Fungi species b).
- Note the Inhibition Halo d) that surrounds some of the test squares. This indicates a really good kill!
MAPS PETRY-DISH EXPERIMENTS

Sprayed portion of 'yeast-in-water' fungus with **MAPS-1** and allowed to dry.
After 1\textsuperscript{st} incubation – **NO GROWTH**.
Then "re-streaked", with yeast \& water and allowed to dry.
After 2\textsuperscript{nd} incubation – **GROWTH**.

Untreated + yeast – Sprayed on wood and paper and allowed to dry.
After 1\textsuperscript{st} incubation – **GROWTH**.

Sprayed 'yeast-in-water' fungus with **MAPS-1** and allowed to dry.
Then sprayed it with **MAPS-2** and allowed to dry.
After 1\textsuperscript{st} incubation – **NO GROWTH**.
Then "re-streaked", with yeast \& water and allowed to dry.
After 2\textsuperscript{nd} incubation – **NO GROWTH**.

Untreated + No Yeast on wood and paper and allowed to dry.
After 1\textsuperscript{st} incubation – **GROWTH**.

MAPS-2, when applied correctly forms a synergistic effective Surface Stabilizer
APPLICATION

- **MAPS-2** is supplied in a ready to use format. Open sealed container and gently stir if container was stored for an extended period.
- Ensure substrate is clean, mold-free, and dry.
- Pour **MAPS-2** into sprayer (or fogger) and test spray in a small area to ensure substrate compatibility with **MAPS-2**.
- Spray enough product to wet out the entire surface without dripping.
- Coverage is approximately 400 sq. ft per gallon depending on the substrate permeability.
- Allow to completely dry before disturbing the surface.
- Do not paint over **MAPS-2** unless fully tested.
SUMMARY OF MAPS BENEFITS

**It works!**

- Relatively non-toxic
- Formulated with organic acids and natural ingredients
- Easy to apply (flexible & efficient) water soluble
- Doesn't destroy (color-toxicity) walls, furniture, etc.
- Provides remediators & builders with value –added uniqueness / competitive advantage
- Creates an economic opportunity to those who apply this product
THANK YOU