Electrostatic Spraying Considerations for Disinfecting Hotel Rooms

Electrostatic Spray (ESS) Disinfection was relatively unknown as a concept in the lodging industry until Marriott announced the intent to implement this globally as a creative industry-leading measure. It has been a wildly well received PR approach to delivering a safe, disinfected environment for guests. The concept has evolved into something that other brands and independents are now looking to adopt. As the adage goes, “The devil is in the details”.

Since the concept was introduced, it is now clear that it is the intent of many is to utilize this process not only in public areas, but to treat each checked-out hotel room prior to new guests arriving. Any hotels considering such, need to be aware of several important things prior, primarily that like the EPA in the US, Health Canada’s position is that the use of these sprayers, is a specifically different application versus regular use of disinfectants by spray bottle, cloth or sponge, for which their existing approvals had been granted. As a result, as Health Canada has not yet approved any disinfectants through the use of such sprayers, and until specific approvals have been granted, stating that disinfecting is taking place, or that a disinfectant is being used, it is not allowed.

Having spent 14 years working with the largest provider of cleaning and disinfecting products to the hotel industry, and following dozens of inquiries and discussions with operators and sellers on this subject, this topic became somewhat of an obsessive interest. Following a review of Marriott’s approach with their senior management team leading the initiative, it is clear that they have done a massive amount of research and continue to do so including testing and consultation with various agencies including EPA, CDC, and others in the United States to come up with an approach that is not only industry leading, but covers all the key aspects of the various considerations needed. They have gone so far as to test the process with repeated applications in hotel rooms with typical contents, had microorganism efficacy testing done, and additionally set up facilities in mocked up testing rooms. As they shared, they have along with regulators, tested the application and products from every reasonable angle and when launched in the near future their program will offer a specific approach that is based on best practices. Others without such resources or this level of diligence, whether other brands or independents, will have to make their own decisions. Each should be aware that in emulating Marriott’s concept, use of these devices to apply disinfectant should be done only after significant considerations.

The first matter is that there is a global shortage of these ESS units. Even as the key players ramp up manufacturing, distributors have been suggesting that they won’t be available reliably for some time. One large distributor stated they are expecting them sometime in July and I know of a small specialty company that plans to have them by mid-June in an extremely limited supply. While Marriott’s sourcing team has been working on securing supply earlier than others and at the best possible cost, generally availability of these devices appears to be a way off, perhaps 6-10 weeks. The units are quite expensive, and some hotels would require multiples of them if to be used for turnover of all rooms. Health Canada stated that are actively discussing whether to potentially classify Electrostatic Spraying Devices as medical devices which would govern their supply, distribution and potentially their use.

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Using this process in hotel rooms following all check-outs creates some new dynamics and questions in terms of cleaning processes. Spraying disinfectants through ESS devices or with the less expensive ULV foggers in hotel rooms is a new concept and while Marriott has done a tremendous amount of work in the US, agencies elsewhere and specifically Canada, have not yet undertaken the investigation they believe is needed prior to approving this concept. Until they do, whether Health Canada or other agencies in Canada, further research needs to be done prior to this approach being used.

Three main areas of consideration should be undertaken before implementing a process of using disinfectant product though Electrostatic Spraying.

**Chemical products & regulations relating to disinfectant claims with ESS:**

The idea of using disinfectants in this manner is a new concept and is evolving for consideration by government agencies. Many suppliers of disinfectants may not be aware that using their product in an Electrostatic Sprayer, especially with a disinfecting claim is not allowed in Canada, and either as a result of that lack of knowledge or in disregard of such, are marketing their products for this use regardless.

Consider this EPA information which is extremely specific:

“If an EPA-registered product’s label specifies that it can only be applied as a liquid using a cloth, sponge or sprayer, then applying it via a fogging device or electrostatic sprayer (which EPA considers a different application method than a conventional sprayer) would be a violation.”

In review with a panel of 9 senior people from Health Canada’s Disinfecting Regulatory team, they confirmed their position is the same. Unless products have gone through the approval process and are granted confirmation, no disinfectants can be used in this application (ESS) method and certainly not with any disinfectant claim. In fact, they further explained that discussions are taking place internally on whether the issue should be handled by their group, or through the Pest Management Regulatory Agency (PMRA) which also addresses soft surfaces, or ultimately both agencies.

Health Canada in in the process of creating a specific guidance/requirement clarification document to be published very shortly on this.

For clarity, use of the classification “disinfectant” is regulated by Health Canada and for use in these sprayers and any product must be approved and have specified on the label that it can be used through an electrostatic sprayer, or it isn’t approved to be used or marketed as a disinfectant or for use in disinfecting. The EPA has recently approved some manufacturers’ products specifically for this use, including that of Ecolab’s who Marriott has been working with. Others are in process with EPA for approval for use with ESS.

The bottom line is that any chemical used in such devices to be considered effective in any way against COVID-19 must have DIN approval specifically for use by Electrostatic Spraying, or in the interim, a document from Health Canada certifying such. In Canada, no products as of today have been approved for use with ESS and use in this way invalidates the product’s DIN registration and as such the product can’t be referred to as a disinfectant.
Safety:

Questions related to safety should start with information listed on any product’s Safety Data Sheets (SDS). A few things should be noted in this regard:

a) SDS sheets are created by the product manufacturer themselves or a company they have hired to manage them and have not been verified by independent third parties.

b) When these sheets are created, they are based on the ingredients being used in an intended manner. The vast majority of situations did not include considered use with these type of sprayers.

A review of whichever product is considered should include that the SDS sheet that has been updated for this specific use and all PPE at minimum should include significant protection for inhalation and ideally sealed eye protection.

Clorox’s Total 360 system which uses its own E-Sprayer device’s SDS information is specific that eye protection be worn and N95 masks should be used for prolonged use and further that “Respiratory protection must be provided in accordance with current local regulations”. https://www.thecloroxcompany.com/wp-content/uploads/2019/09/Clorox-Commercial-Solutions%C2%AE-Clorox%C2%AE-Total-360%C2%AE-Disinfectant-Cleaner1.pdf While the company’s own videos show the user wearing appropriate masks as well as goggles, others promoting use of this system, or others, often do not.

The very nature and advantage marketed for these sprayers is that they get the solution to be attracted to ‘nooks and crannies’ and hard to reach places where it is not already deposited and causes it to travel in directions beyond where the nozzle is aimed directly, around items and against gravity. This could potentially include lungs, eyes and skin if not fully protected. It is difficult to assume that disinfectants able to kill viruses in very short times, are 100% safe to inhale or have in one’s eyes repeatedly and over extended periods, especially after being electrostatically charged. Donald Trump may be a proponent of inhalation of these types of products, but most intelligent people would disagree.

In consultation with a Health and Safety inspector from a provincial Ministry of Labour, they stated that they believed that any use should likely be addressed based on the specific device and chemical product and that they would typically direct that an Environmental/Occupational Hygienist be engaged to examine the approach to make a determination of safety. Secondarily, as Safety Data Sheets would not likely have been created with this use in mind in many cases, that any chemical company should revise their documents or have alternate SDS information particularly covering use in this way.

With these considerations in mind, from a safety perspective PPE for staff members tasked to treat numerous rooms on an ongoing basis requires some real consideration in terms of level of protection. It is recommended that the specific intentions (including product and approach) may be worthwhile reviewing with the OH&S regulator for the province or a third party professional prior to making this a procedure for any property for in-room use.
**Impact on room contents:**

*How will repeated use of electrostatic disinfectant spraying impact the contents of my hotel room?*

The answer is that no one really knows, and it depends on the product and procedure used. In normal times, one would expect a diligent and thorough testing process to determine the answer in regard to the various materials and objects in a hotel room based on various specific products and procedures and after repeated use. These are not normal times though. Marriott has done a significant amount of this testing based on specific disinfectant products, application procedures, and with items typical of their room standards but the outcomes may not be universal when elements are different.

What is indisputable is that to serve the purpose of disinfection in accordance with EPA or Health Canada, all products require a prolonged wet contact time on surfaces with a certain concentration of diluted disinfectant and in Canada the length of time required for surfaces to be wet is often significantly longer than EPA’s. Regardless of the chemical used, items such as electronics are simply not compatible with liquids and the nature of the application by electrostatic spraying is specifically used to get the solution into spaces even which are not directly in the path of the emitted spray.

Questions also exist in terms of other materials in the room being exposed on a repeated basis to different types of disinfectants and moisture. Consider items such as curtains, flooring, fabrics, furnishings, mattresses, mirrors, wallcovering, pillows and artwork; all have been developed in recent times with new materials and processes and without specific testing it is impossible to know if any negative impact could result from long term use.

Procedurally, there is also the risk that housekeeping staff may not recognize the need to effectively clean the rooms as thoroughly. Many hotels are planning on leaving the rooms without daily cleaning until check-out, which will cause a greater accumulation of soils in between cleaning. Especially if spraying without wiping is considered, staff must be truly clear that application of disinfectants are to be used in addition to thorough cleaning procedures prior, not a replacement for doing so, despite this being an additional step. Aside from soils affecting efficacy of the disinfecting result, soils can also bond with aerated wet solutions and can leach into porous surfaces such as curtains, carpets, mattresses, pillows and linens where normally no cleaning agents are normally applied, and solidify into difficult to clean compounds if not removed prior to drying. Further, consider that droplets landing on a surfaces even if clean, can potentially build up on the material and could prove to cause challenges, if not damaging the material itself, then in terms of difficulty in removal of residue at some future time after repeated exposure.

The caution here is that this approach to aerosolizing materials in a room should ideally be done only after strong understanding of a procedure than minimizes risk of damage to items or potentially through consultation with manufactures of the exposed items. At minimum, test the products repeatedly on surfaces that are likely to receive repeated exposure.
Summary:

While the concept of increased disinfection of hotel rooms is a very laudable goal and one which may resound with the public, there are many questions that result from the use of electrostatic application of disinfectants. Answers need to be determined by each hotel regarding:

- Ensuring you use only products which become approved by Health Canada for use with these sprayers if making any statement about disinfecting or use of a disinfectant
- PPE must meet or exceed requirements based on product’s ESS use and professionals with appropriate knowledge should be consulted.
- Thorough training must be provided to staff in a manner such that is reasonable to expect that it can/will realistically be followed and can be monitored.
- The examination of any potential affects on room contents based on the specific considered product and procedures.
- Clarity on whether guests are more likely to book based on this approach versus some that may not like the idea of staying in a room repeatedly sprayed with disinfectant.

The current delay in availability of these spray units allows time for consideration of these issues prior to implementing their use and allows time for chemical suppliers to pursue Health Canada approvals for use as a disinfectant. Examination and testing by Marriott has been performed very thoroughly and specifically and has required many weeks and numbers of experts and is still ongoing. The interest resulting from their announcement to integrate electrostatic spraying of disinfectants is likely to result in use by others that may not have employed the level of resources and due diligence that the issue deserves. Even after the most stringent testing, product review, safety considerations and content testing, while electrostatic spraying of guest rooms is novel approach, it is still far from a perfect solution without elements of concern, no matter what specific approach is implemented. As questions are also being asked about the use of UV light disinfection, and specifically UV wands, similar thorough examination should be undertaken to fully understand these considerations prior to implementing their use, but in that case Health Canada has established parameters.

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