

Environmental Measures for Cleaning Customer Facilities as Services

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Keywords Facility management and operation, Maintenance and safety inspection, Hygiene management, Cleaning management, Security and guard work, Construction, Energy-saving measures

Abstract

As a total building management company, we have been providing total support service for our customers' facilities for over half a century, covering everything from operational management to sanitation management, cleaning, security, maintenance, inspections, repairs, and other business management.

Our cleaning services, one of our services, are based on ISO 9001-certified rigorous quality control, and we have acquired the Medical Services Mark, etc. allowing us to meet a variety of needs, including those of hospitals.

In addition to basic cleaning, we maintain a strong sense of kaizen (continuous incremental improvements), thoroughly inspecting the condition of the entire facility, maintaining comfortable spaces both inside and outside our customers' important facilities, and providing a clean and beautiful environment. Our above services are customer-driven and we realize services so that they can use the building - feeling comfortable and safe.

1 Preface

Our company provides total building management services, including cleaning management, which maintains the cleanliness and sanitary environment of buildings and facilities, providing comfortable living and proper working environments. Cleaning work varies depending on the location and field, and each location requires specialized tasks, requiring a large number of personnel.

In recent years, many new technologies have been developed using Digital Transformation (DX) technologies, helping to alleviate labor shortages. Furthermore, from an environmental perspective, we offer better proposals for our customers based on the Sustainable Development Goals (SDGs). This article introduces the environmental measures we implement in our cleaning services.

2 Periodical Maintenance of Resilient Floors

Periodical maintenance of resilient floors can be performed using either the "wet system" or the "dry system".

The "wet system" refers to a surface cleaning system in which the surface is first dusted, then a

cleaning solution is used to remove dirt and the surface wax coating, and then the removed wax is reapplied. Alternatively, a "stripping and cleaning" method is used in which the entire wax layer, not just the surface layer, is removed with a stripping agent, and a new wax layer is then formed. This system involves monthly surface cleaning and wax application, followed by regular "stripping and cleaning."

The "dry system" involves creating a base layer on a clean floor and then polishing it with specialized equipment. Using dry maintenance wax, this system forms a strong wax layer by repeatedly applying wax and buffing (heating the wax surface with a buffing machine to increase adhesion) over a period of approximately one month, making it more resistant to dirt. This system has benefits such as reducing the area of stripping and cleaning, shortening work time, improving safety, reducing labor costs, and reducing environmental impact. Furthermore, the high-concentration wax creates a hard film, resulting in a brilliant shine and beautiful appearance.

Our company has proposed and developed a "dry system" as an environmental measure. **Fig. 1** shows an automatic floor scrubber, **Fig. 2** shows a burnisher. The benefits of the dry system are as



Fig. 1 Automatic Floor Cleaning Machine

The coating surface is cleaned using an automatic floor cleaning machine (for floor dust removal).



Fig. 2 Burnisher

A burnisher is used to burnish (restore gloss and strengthen the coating).

follows:

- (1) Reduced labor costs and environmental impact by reducing the number of wax applications.
- (2) Reduced area requiring stripping and cleaning.
- (3) Reduced environmental impact by reducing waste liquid from stripping and cleaning.

3 Cleaning Work Using Strong Alkaline Electrolyzed Water

Our company uses “strong alkaline electrolyzed water” to perform eco-friendly cleaning work. Because “strong alkaline electrolyzed water” does not contain any environmental pollutants, such as surfactants or solvents, found in detergents, it does

not fall under the Act on Promotion of Chemical Substance Management and Transfer Register (PRTR Act) in Japan. Its wastewater standards for Biochemical Oxygen Demand (BOD) and Chemical Oxygen Demand (COD) are both zero. Furthermore, because the alkali itself returns to water as it breaks down dirt, there is no residue. Cleaning with ionized water is nearly as effective as cleaning with water alone, and it is also effective in addressing the increasingly severe problem of wastewater treatment.

3.1 Benefits of Use

3.1.1 No Detergent Residues

Completely rinsing detergent after cleaning is extremely difficult. Residual detergent components on the surface of the object being cleaned can cause various problems. Repeated cleaning can make items more susceptible to soiling and more difficult to remove, a phenomenon often observed in carpeting and other areas. Furthermore, residual detergent chemicals can cause sick-house syndrome, so careful consideration is required when selecting detergents. Using “strong alkaline electrolyzed water” eliminates these problems.

3.1.2 Virus, Bacteria, and Odor Reduction Measures

Strong alkaline electrolyzed water is extremely safe for humans, yet has proven effective in inactivating viruses such as norovirus and disinfecting bacteria such as O-157. Unlike hypochlorite, it lacks skin irritation, odor, or corrosiveness to objects being cleaned. Strong alkaline electrolyzed water is an all-around player, capable of cleaning, inactivating, disinfecting, and deodorizing bacteria. It has also been shown to inactivate human coronaviruses, potentially helping to prevent the future spread of COVID-19.

3.1.3 Labor Cost Reduction through Improved Work Efficiency

All cleaning processes consist of washing and rinsing. When using detergent, both the dissolved dirt and the used detergent must be rinsed away. However, when washing with electrolyzed water, rinsing time is significantly reduced, dramatically increasing work speed. Fig. 3 shows the washing process.

3.2 Disadvantages of Use

Strong alkaline electrolyzed water is costly to generate and maintain. It may also cause skin irrita-



Fig. 3 Cleaning Process

This shows the cleaning process after using electrolyzed water.

tion, so wearing rubber gloves is recommended when using it.

3.2.1 Materials to Caution When Using

Depending on the pH value and contact time, the following effects may occur on certain materials:

- (1) Non-ferrous metals such as aluminum and brass will be discolored.
- (2) Glass will melt.
- (3) Leather products will be stained.
- (4) Wax and coatings will be removed.

However, these effects can be avoided by adjusting the pH value, and so on.

3.2.2 Storage Degradation

When strong alkaline electrolyzed water is left

unused, carbon dioxide from the atmosphere dissolves in the water, gradually lowering the pH and causing a decline in performance. However, storing the water in a sealed container to prevent exposure to the atmosphere can prevent the pH from dropping. If the water is exposed to the atmosphere, it is necessary to manage the pH and periodically replenish the strong alkaline electrolyzed water.

4 Postscript

Guided by our guiding principle of “providing services that satisfy our customers,” we provide total support service for our customers’ needs through a “single point of contact” (consolidating inquiries that were previously handled by multiple departments and personnel into a single point of contact) and “prompt response”. We cover everything from customers’ facility management and management services on sanitation, cleaning, security and guard work, maintenance, inspections, repairs, and other business management. By drawing on our half-century of experiences and expertise, as well as our technical capabilities as a building management company within the Meiden Group, we aim to continue to be a company trusted by our customers and contribute to society.

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