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CHAPTER 4 CLEANING AND DISINFECTION MEASURES OF AREAS



*Back to work,
taking care of me and taking care of you!*



PROTOCOL FOR REACTIVATING CONSTRUCTION, OPERATION AND
MAINTENANCE PROJECTS AND
TRANSMISSION BRANCH, TGI AND CORPORATE



CLEANING AND DISINFECTION MEASURES OF AREAS

Generalities for cleaning and disinfection

Cleaning and disinfection of handles, switches, knobs, lift buttons, etc. should be done at least 3 times a day

| | |
|--------------------------------|--|
| Name | ROUTINE CLEANING AND DISINFECTION OF AREAS AND SURFACES |
| Objective | Reduce the risks and impacts presented in the activity of disinfection of surfaces and equipment, establishing parameters to follow and complying with safety and environmental rules. |
| Scope | Applies to all areas of Grupo Energía Bogotá |
| Epp, machines and tools | Disposable rubber gloves, goggles, breathing protection, non-slip footwear, towel or drying cloth, bucket, spray, wet-floor sign, broom, dustpan and mop. |



SEC 1

Detailed description of activity

1. Wear equip., gloves, goggles, face mask.
2. Gather disinfection elements and supplies to be used to perform the activity correctly: Bin for each area.
Atomizer for each area (common areas, toilets with their own label), towels or drying cloth 1 for each area (1 towel for common areas and offices, 1 towel for toilets).



Personal protection elements

- Black rubber gloves (Common Areas)
- Disposable breathing protection, goggles
- Yellow rubber gloves (Cafeteria)
- Non-slip shoes
- Red rubber gloves (Toilets)

Dangers/ issues

Locative:

- Scrolling on uneven surfaces.
- Order and cleaning conditions.

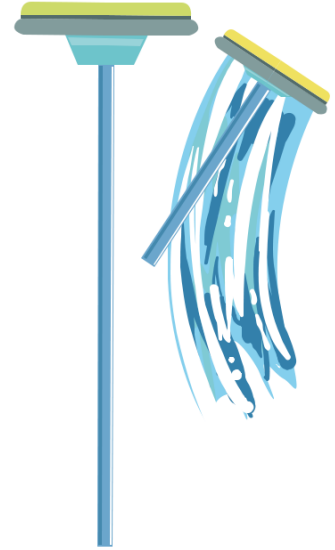
Control methods

- Inspect the work area, identify unsafe conditions and report them to the immediate supervisor.
- Use all personal protective equipment and non-slip footwear.
- Validate the color of gloves according to the area where the work is to be done
- Use supplies such as buckets and personal protection elements assigned to each area
- Use all toilet equipment in good condition.
- Towels or drying cloths need to be new.
- Report unsafe conditions immediately to supervisor.

SEC 2

Detailed description of activity

1. To clean the areas, water and neutral soap are diluted to remove dirt from the areas. For this activity, 20 milliliters of neutral soap should be diluted with one liter of water.
2. Fold a towel or drying cloth in a series of four squares, moisten it with the soap solution and gently wipe the surfaces from outside to inside in a circle on furniture, desks, chairs, receptions, light switches, walls, office partitions and other surfaces.
3. For cleaning floors, sweep with a soft broom from the inside out and collect the dirt, then apply the water and neutral soap solution and scrub the entire area with a hard broom.
4. To remove the soap, mop it evenly several times until the soap is completely removed.



Personal protection elements

- Rubber Gloves
- Goggles
- Disposable breathing protection
- Non-slip footwear

Dangers/ issues

Chemical:

- Chemical handling, irritation, allergic reactions, chemical spillage

Locative:

Falls at the same level

Order and cleaning conditions

ENVIRONMENTAL ISSUES

- Water consumption
- Wastewater production for domestic use
- Consumption of other resources and raw materials

Control methods

- Ensure dissemination of cleaning and disinfection instructions and chemical handling training
- Have the safety data sheets of the chemicals to be used in the work
- Check the product data sheet if required to validate the dosages
- Verify that the chemical is not expired to guarantee its effectiveness.
- The device where it is dosed and those used for transfer must be completely clean.
- Atomizers used to transfer pure or diluted product must always be labeled according to SGA
- Use all personal protective equipment and non-slip footwear.
- Report unsafe conditions immediately to supervisor.
- Report health conditions that make it difficult to work

SEC 3

Detailed description of activity

Low area disinfection: 6 ml product /1000 ml water

1. Perform the dosage of Sodium Hypochlorite (NaClO) with water in a completely clean bucket previously washed with water and neutral soap. (See attached table for product dilution measures)
2. Then transfer the product dilution to the atomizers according to its label.
3. The preparation of the use dilution must be done in a precise amount for disinfection.
4. Fold the towel or drying cloth in series of four squares, moisten it with the disinfectant solution and clean the surface from outside to inside in a circular way so that no particles are left on furniture, desks, floors, chairs, receptions, light switches and other surfaces and equipment.



Disinfection of office equipment

Monitor

- Clean the screen of the monitor and arm of the equipment with a microfiber cloth slightly moistened with a solution of pure alcohol with atomizer so as not to damage the equipment.
- Do not spray directly on the screen, as the fluid could get on the edges of the screen and cause serious problems. 3. Never use aggressive cleaning agents, as these contain chemicals that can damage the screen.

Keyboards

- Turn the keyboard around and gently tap out to remove any trapped objects.
- Wet a cloth with an alcohol solution and clean the keys and the rest of the keyboard. MOUSE: • Moisten with a clean cloth with an alcohol spray solution.
- Wipe the outer surface of the mouse with the cloth, being careful with the buttons.

Telephones

- Moisten with a clean cloth with a pure alcohol solution to clean the equipment. •Take notice of the earpiece. Carefully dry with a dry cloth.

Personal protection elements

- Black rubber gloves (Common Areas)
- Yellow Rubber Gloves (Dining room)
- Red rubber gloves (Toilets)
- Goggles
- Disposable breathing protection
- Non-slip footwear

Dangers/ issues

Mechanical:

- Contact with structural parts.
- Chemical: Chemical substance handling, irritation, allergic reactions

Locative:

- Scrolling on uneven surfaces.
- Order and cleaning conditions.

Bio-mechanical:

- Standing for a prolonged time.
- Continuous movement
- Repetitive movement in upper limbs

Locative:

- Scrolling through surfaces at the same and/or different level Contact with structural parts
- Scrolling on uneven surfaces
- Order and cleaning conditions.
- Objects falling due to improper storage.
- Falls at the same level

Mechanical:

- Hit by or against

Electrical:

- Low voltage contact through electrical sockets and cleaning of electrical and electronic equipment

Biological:

- Contact with virus, bacteria, fungi.

Natural phenomena and fires

ENVIRONMENTAL ASPECTS

- Consumption of other resources and raw materials
- Consumption of energy through use of superficial lights in places where there is no light
- Waste generation
- Water consumption
- Wastewater production for domestic use
- Consumption of disinfectant agents and other cleaners.

Control methods

- Perform calisthenics before starting work to avoid biomechanical hazards
- Carry out adequate waste separation at the source.
- Verify that pipes and faucets are in good condition, if fleeting report immediately to the supervisor.
- Use the necessary water for the activity, do not leave the taps open.
- Making appropriate use of PPE
- Use the recommended dosages of the toilet elements in order to minimize consumption.
- Use the chemicals in the proportions indicated in the dosage table.
- Carry out the dosage of chemical inputs with the test tube intended for this purpose
- Sweep in a damp cloth to avoid airborne particles and the mop should be impregnated with the disinfectant.
- Inspect the work area, identify unsafe conditions and report them to the immediate supervisor.
- Do not insert your hands into small holes.
- Be careful with protruding structures or bad edges.
- Perform active breaks according to the work you do
- If cleaning and disinfection of floors is being done, locate the corresponding wet floor sign.
- Do not pour liquid content directly onto electrical outlets or electronic equipment such as computers or printers
- In case of incidents immediately report to your supervisor; if an incident with chemicals occurs, consult the product safety data sheet
- In case of emergencies such as earthquakes or fires in the facilities, the customer's emergency plan must be followed.

SEC 4

Detailed description of activity

Low area disinfection: 8 ml product /1000 ml water

1. Fold the towel or drying cloth in series of four squares, moisten it with the solution and proceed with the disinfection of the handle or discharge button of sanitary appliances, taps, external parts of soap dispensers, towels and toilet paper, door handles and accessories in general (Disinfect from outside to inside)
2. After using the towel or cloth, wash it and repeat the previous procedure in order to perform a good disinfection.
3. End the activity by checking that the area has been completely disinfected.
4. Remove the tools that were used by washing them with a solution of 1 ml of product / 1 Lt Water according to the dosage of the FDS rinsing with abundant water, then disinfect with Sodium Hypochlorite with a solution of 10 ml of product / 1 Lt Water Mops, towels, gloves and buckets are then left to air dry on a dry and disinfected surface.

Personal protection elements

- Black rubber gloves (Common Areas)
- Yellow rubber gloves (Cafeteria)
- Red Rubber Gloves (Toilets)
- Non-slip shoes

Dangers/ issues

Locative:

Bio-mechanical:

- Standing for a prolonged time.
- Continuous movement

Locative:

- Scrolling through surfaces at the same and/or different level.

Biological:

- Contact with virus, bacteria, fungi.

Control methods

- Be careful with structures that protrude from the walls or edges in poor condition.
- Make sure there are no toiletries left and place the wet floor sign until the facility is free of moisture.
- Use all personal protective equipment and non-slip footwear.

General recommendations

- Carry out this procedure while the personnel (fixed, floating and/or visitors) are not at the site where the disinfection is being carried out. Signs must be placed in the area.
- No food should be consumed during the activity.
- This procedure is to be carried out on a daily basis and includes parking lots.

| Solution | Hypochlorite solution of according to safety sheet | Solution of water (ml) | Solution of water + chlorine | PPM |
|---|--|------------------------|------------------------------|-----|
| Chlorine solution concentrated at 5,25% | Common Areas 6 ml | 994 ml | 1000 ml | 317 |
| Chlorine solution concentrated at 5,25% | Toilets 8 ml | 992 ml | 1000 ml | 312 |

| | |
|--------------------------------|---|
| Name | DISINFECTION OF SURFACES AND EQUIPMENT IN AREAS DUE TO POSSIBLE CONTAMINATION (COVID-19) |
| Objective | Reduce the risks and impacts presented in the activity of disinfection of surfaces and equipment, establishing the parameters to follow and complying with safety and environmental standards. |
| Scope | Applies to all contracts where Recuperar provides the cleaning service and where it applies the daily disinfection procedure, as required by the Ministry of Health. |
| Epp, machines and tools | Long nitrile glove, N95 face mask respirator Ref. 8210, safety goggles, splash gogglegear, white non-slip rubber boot with toe, tivek type C, boot cover, mask, towel or drying cloth, bucket, atomizer, wet floor warning and rag. |

SEC 1

Detailed description of activity

1. Mark and define the identified area as symmetric in disinfection.

Put on personal protective equipment (gloves, goggles, mask, tivec suit, respirator).

Gather disinfection elements and supplies to be used to perform the activity correctly: Bucket for each area (green bucket for the common areas, yellow bucket for the dining room, red bucket for the bathrooms), Atomizer for each area (common areas, dining room, toilets with their own label), towels or drying cloth 1 for each area (1 towel for the common areas, 1 towel for the dining room, 1 towel for the toilets).



Personal protection elements

- | | |
|---|------------------|
| 1. Long nitrile glove. | 5. Tivek type C. |
| 2. Face mask respirator with valve Ref. N95 8210. | 6. Face mask |
| 3. Safety glasses, gogglegear splash | 7. Mask |
| 4. White anti-slip safety rubber boot with toe cap. | |

Dangers/ issues

Locative:

- Scrolling on uneven surfaces.
- Order and cleaning conditions,

Control methods

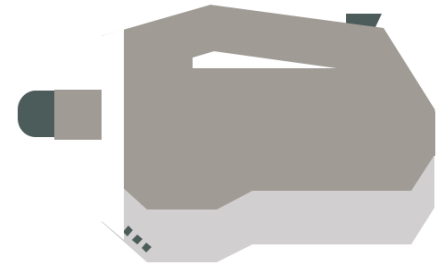
- Inspect the work area, identify unsafe conditions and report them to the immediate supervisor.
- Use all personal protective equipment and non-slip footwear.
- Use all toilet equipment in good condition.
- Towels or drying cloths need to be new.

SEC 2

Detailed description of activity

Environmental disinfection: this is done after manual cleaning and disinfection, using a technique called nebulization.

After misting, expect one (1) time to enter the disinfected site.



Personal protection elements

- | | |
|---|------------------|
| 1. Long nitrile glove. | 5. Tivek type C. |
| 2. Face mask respirator with valve Ref. N95 8210. | 6. Face mask |
| 3. Safety glasses, gogglegear splash | 7. Mask |
| 4. White anti-slip safety rubber boot with toe cap. | |

Dangers/ issues

Ergonomic:

- Standing for a prolonged time.
- Continuous movement

Locative:

- Scrolling through surfaces at the same and/or different level
- Objects falling due to improper storage.

Mechanical:

- Hit by or against

Electrical:

- Low-tension contact.

Biological:

- Contact with virus, bacteria, fungi.

Control methods

- Inspect the work area, identify unsafe conditions and report them to the immediate supervisor.
- Do not insert your hands into small holes.
- Be careful with protruding structures or bad edges.
- Use all personal protective equipment and non-slip footwear.

SEC 3

Detailed description of activity

The areas must be previously cleaned with neutral soap, to carry out the disinfection of the areas. Dosage sodium hypochlorite (NaClO) with water in a completely clean bucket, previously washed with water and neutral soap, which must be in contact with the surface for at least 1-10 minutes (See attached table for product dilution measures). Then transfer the product dilution to the atomizers, according to its label.

The preparation of the use dilution must be done in a precise amount for disinfection.

Designate an area for the removal and disposal of personal protective equipment (PPE), which has the appropriate elements for the disposal of bio-sanitary material.

Personal protection elements

- | | |
|---|------------------|
| 1. Long nitrile glove. | 5. Tivek type C. |
| 2. Face mask respirator with valve Ref. N95 8210. | 6. Face mask |
| 3. Safety glasses, gogglegear splash | 7. Mask |
| 4. White anti-slip safety rubber boot with toe cap. | |



Dangers/ issues

Chemical:

- Handling of chemical substances.

Control methods

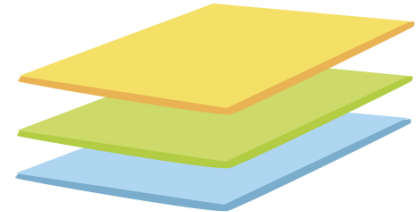
- Verify that the chemical is not expired to guarantee its effectiveness.
- The device where it is dosed and those used for transfer must be completely clean.
- Use all personal protective equipment and non-slip footwear.

SEC 4

Detailed description of activity

Final disinfection in semi-critical area: 90 ml of product /945 ml of water in 10 minutes of action final solution of 5,000 ppm.

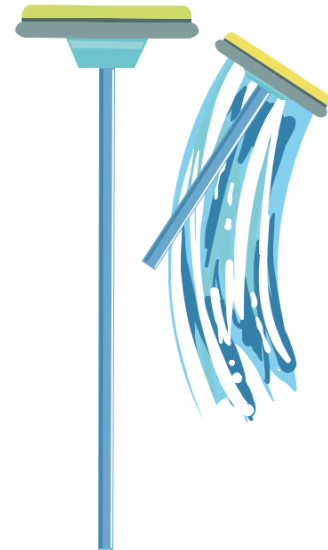
Fold the towel or drying cloth in series of four squares, moisten it with the disinfectant solution cleaning the surface up and down in a linear way and then from left to right, so that no particles are left on furniture, telephones, keyboards, mice, desks, door handles, microwaves, dispensers, containers, handrails, floors, windowsills, chairs, light switches, printers, elevator buttons and other surfaces and/or equipment that may come into direct contact with body fluids, among others.



Final water disinfection in semi-critical area: 90 ml of product /945 ml of water in 10 minutes of action final solution of 5.000 ppm.

Fold the towel or drying cloth in series of four squares, moisten it with the solution and proceed with the disinfection of the handle or discharge button of sanitary appliances, taps, external parts of soap dispensers, towels and toilet paper, door handles and accessories in general.

1. Soft redwood broom handle wrapped in a drying cloth moistened with the solution at 5.000 ppm.
 - a. Disinfection of ceilings in one direction only until the end; walls in a linear and orderly manner from top to bottom until the end.
 - b. The floors are disinfected with red wicker cloth in a linear and orderly manner covering the surface.



- After using the towel or cloth, wash it and repeat the previous procedure in order to perform a good disinfection.
- Clean the surfaces from top to bottom in a linear fashion and from the outside to the inside, in order to perform a good disinfection and not leave any particles in the area.



Personal protection elements

2. Long nitrile glove.
3. Face mask respirator with valve Ref. N95 8210.
4. Safety glasses, goggle gear splash
5. White anti-slip safety rubber boot with toe cap.
6. Tivek type C.
7. Face mask
8. Mask

Dangers/ issues

Ergonomic:

- Standing for a prolonged time.
- Continuous movement

Locative:

- Scrolling through surfaces at the same and/or different level
- Objects falling due to improper storage.

Mechanical:

- Hit by or against

Electrical:

- Low-tension contact.

Biological:

- Contact with virus, bacteria, fungi.

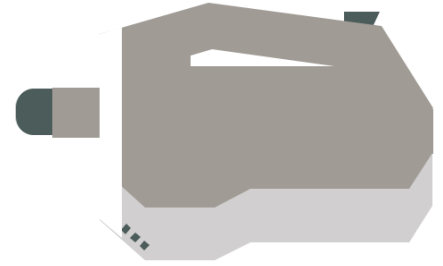
Control methods

- Inspect the work area, identify unsafe conditions and report them to the immediate supervisor.
- Do not insert your hands into small holes.
- Be careful with protruding structures or bad edges.
- Use all personal protective equipment and non-slip footwear.

SEC 5

Detailed description of activity

Environmental disinfection: this is done after manual cleaning and disinfection, using a technique called nebulization.



Personal protection elements

1. Long nitrile glove.
2. Face mask respirator with valve Ref. N95 8210.
3. Safety glasses, gogglegear splash
4. White anti-slip safety rubber boot with toe cap.
5. Tivek type C.
6. Face mask
7. Mask

Dangers/ issues

Ergonomic:

- Standing for a prolonged time.
- Continuous movement

Locative:

- Scrolling through surfaces at the same and/or different level
- Objects falling due to improper storage.

Mechanical:

- Hit by or against

Electrical:

- Low-tension contact.

Biological:

- Contact with virus, bacteria, fungi.

Control methods

- Inspect the work area, identify unsafe conditions and report them to the immediate supervisor.
- Do not insert your hands into small holes.
- Be careful with protruding structures or bad edges.
- Use all personal protective equipment and non-slip footwear.

SEC 6

Detailed description of activity

- End the activity by checking that the area has been completely disinfected.
- Remove the tools that were used by washing them with Degratéc detergent with a solution of 1 ml of product / 1 Lt water, according to the dosage in the safety data sheet by rinsing with abundant water, then disinfect them with sodium hypochlorite with a solution of 10 ml of product / 1 Lt water. Mops, towels, gloves and buckets are then left to air dry.



Personal protection elements

- | | |
|---|------------------|
| 1. Long nitrile glove. | 5. Tivek type C. |
| 2. Face mask respirator with valve Ref. N95 8210. | 6. Face mask |
| 3. Safety glasses, gogglegear splash | 7. Mask |
| 4. White anti-slip safety rubber boot with toe cap. | |

Dangers/ issues

Ergonomic:

- Standing for a prolonged time.
- Continuous movement

Locative:

- Scrolling through surfaces at the same and/or different level.
- Objects falling due to improper storage.

Biological:

- Contact with virus, bacteria, fungi.

Control methods

- Be careful with structures that protrude from the walls or edges in poor condition.
- Make sure there are no toiletries left and place the wet floor sign until the facility is free of moisture.
- Use all personal protective equipment and non-slip footwear.

General recommendations

- Carry out this procedure while the personnel (fixed, floating and/or visitors) are not at the site where the disinfection is being carried out.
- Inform personnel in general that they should wait for approximately 5 minutes while surface moisture is removed.
- No food should be consumed during the activity.
- This procedure is to be carried out on a daily basis.

Equation $V1 \cdot CA = V2 \cdot C2$

Variables

$v1 = 37 \text{ ml}$
 $c1 = 130000 \text{ ppm}$
 $v2 = 963 \text{ ml}$
 $c2 = ?$

Removal of variable $c2$

$$c2 = \frac{v1 \cdot c1}{v2}$$

$c2 = 4994,81 \text{ ppm}$

1. Read as: **13 g** of the active principle in 100 ml of water is done (solvent)
2. Since the concentration is in **g/ml** the purpose is to bring units of volume to **mg/L**
3. These conversions are made of necessary nits

4. The conversion of units of ml to L

| | | | |
|------------------------------------|---|-------------------|--------------------|
| 13 g | * | 1000 ml | 130 g |
| 100 ml | | 1 L | 1L |
| The conversion of units of g to mg | | | |
| 130 g | * | 1000 mg | 130000 mg/L |
| 1 L | | 1 g | = ppm |

Equation $V1 \cdot CA = V2 \cdot C2$

Variables

$v1 = 87 \text{ ml}$
 $c1 = 52500 \text{ ppm}$
 $v2 = 913 \text{ ml}$
 $c2 = ?$

Removal of variable $c2$

$$c2 = \frac{v1 \cdot c1}{v2}$$

$c2 = 5002,74 \text{ ppm}$

1. Read as: **5 g** of the active principle in 100 ml of water is done (solvent)
2. Since the concentration is in **g/ml** the purpose is to bring units of volume to **mg/L**
3. These conversions are made of necessary nits

4. The conversion of units of ml to L

| | | | |
|------------------------------------|---|-------------------|-------------------|
| $5,25 \text{ g}$ | * | 1000 ml | 52,5 g |
| 100 ml | | 1 L | 1L |
| The conversion of units of g to mg | | | |
| $52,5 \text{ g}$ | * | 1000 mg | 52500 mg/L |
| 1 L | | 1 g | = ppm |