Personal Protective Equipment for Sanitation Workers

When to use PPE?

Appropriate Combinations of PPE for various Sanitation Workers
When to use PPE?

Categories of PPE their details and when to use them?
When to use PPE?

**Head Protection**
Should be worn in case of physical hazards such as impact due to falling object or collision with fixed objects at workplace. Type of helmet depends on the physical risk present at the workplace.

**Face Protection**
Should be worn where there is risk of continuous droplets or splashes of fluids, heat from hot solid bodies and electric arcs.

**Lung protection: Respirators**
Should be worn when working in confined space where there is risk of oxygen deficiency and / or when concentration of toxic substances are at dangerous levels.

**Ear Protection**
Should be worn in case of risk of exposure to high decibels noise at the workplace. They are also recommended where continuous exposure to mist or droplets of fluid / spray is expected.

**Eye Protection**
Should be worn in case of risk of incidental impact of fragments and dusts, gases and droplets or splashes of fluids.

**Lung protection: Face Masks**
Should be worn when there is risk of solid and liquid particles including nanoparticles such as dusts, fumes, mists, fibers, vapors, gases and microorganisms.
When to use PPE?

**Hand Protection**
Hand protection are classified as mechanical resistant and chemical resistant gloves.  
*Mechanical resistant* are recommended where there is higher risk of abrasion, cut, tear or puncture and incidental contact with hazardous liquids.  
*Chemical resistant* gloves are recommended where intentional contact with the hazardous liquid is expected and there is higher risk of penetration or permeation of chemicals into the glove.

**Body Protection**
Body protection are used for as chemical & biological hazards, thermal hazards and high visibility. Further intentional and incidental exposure to hazard determines the type of body protection.  
These hazards in sanitation are mostly due to incidental exposure to hazardous substance. Intentional exposure is only observed in case of sewer workers engaged in manual cleaning of sewerage systems and septic tanks.

**Foot Protection**
Foot protection is recommended to protect the workers from physical and chemical hazards at the workplace.  
Foot protection helps to avoid injuries arising from contact from falling, rolling or cutting object, penetration from soles and uppers, contact with hazardous substances and slipping and falling on wet surfaces.  
Types include – safety footwear, protective footwear and occupational footwear  
Material – Leather and similar material, rubber or all polymeric material.
Appropriate Combination of PPE

Sanitation Workers in Liquid Waste Management

Desludging Staff, Mechanized Sewer Cleaning Staff and Treatment Plant Staff involved in O&M activities
HEAD PROTECTION

Hard Hat
Hard Hat with shell made out of Polypropylene Co-Polymer with headband, harness, sweatband, peak and chinstrap. Recommended for use only when hazard of falling object, working at height or near open chambers.

EAR PROTECTION

Ear Plugs
Corded, flanged shaped ear plugs made out of non irritant and non allergic material. The ear plugs should be washable and reusable. Recommend for use only in case of noise hazard.

FACE PROTECTION

Face Shield
Face shield made out of clear Polycarbonate having size 8.0” x 15.5” and thickness of 1.0 mm. The shield should be compatible with the safety hard hat.

EYE PROTECTION

Safety Goggles
Safety goggles must be light weight made out of clear Polycarbonate material offering high impact resistance and 99.9% UV protection.
N 95 Face Mask
N 95 face mask with exhalation valve and straps made out of Thermoplastic Elastomer, Aluminium nose clip, Polyurethane nose foam, Polypropylene filter, Polyester shell and cover web.

Mechanical Resistant Gloves
Mechanical resistant, nitrile coated gloves having nylon lining, specialized grip such as dotted or sandy and knitted cuffs.
Recommended to be worn for jobs which might include incidental contact with liquid hazardous waste or chemical.

Chemical Resistant Gloves
Chemical resistant, nitrile gloves having flock lined inners, diamond finish grip, straight cuff, minimum thickness of 0.38 mm and length of 330 mm.
Recommended to be worn on jobs which includes continuous and intentional contact with liquid hazardous waste or chemical.
**BODY PROTECTION**

**Full Sleeves Shirt**
High visibility full sleeves shirt made out of high wicking polyester for comfortable use in hot and humid conditions. Presence of reflective strips for high visibility in low light conditions is optional.

**Full Length Pants**
High visibility full length pants made out of polyurethane coated breathable polyester for comfortable use in hot and humid conditions and easy cleaning. Presence of reflective strips for high visibility in low light conditions is optional.

**FOOT PROTECTION**

**Protective Footwear**
Protective footwear having steel toe with upper body made out of grain leather and polyurethane outsole for protection against physical hazards. Ankle length shoes when paired with full pants provides complete protection from incidental splashes of hazardous liquids.
Appropriate Combination of PPE

Sanitation Workers in Liquid Waste Management

Sewer workers involved in manual cleaning of sewerage network or septic tanks.
Hard Hat

Hard Hat with shell made out of Polypropylene Co-Polymer with headband, harness, sweatband, peak and chinstrap. Use of hard hat is mandatory when working in confined spaces such as sewerage system or tanks.

Ear Plugs

Corded, flanged shaped ear plugs made out of non irritant and non allergic material. The ear plugs should be washable and reusable. Recommend for use only in case of noise hazard.

Full Face Respirator

Full face respirators with replaceable filter cartridge. The mask is made out of clear Polycarbonate material and have high impact resistant. The silicone seal around the mask and thermoplastic elastomer, makes it air tight.

PAPR

Powered Air Purifying Respirator are full face respirator with battery powered blower. It is recommended for use in confined spaces which are well ventilated having concentration of the toxic substances at dangerous levels.
SCBA
Self Contained Breathing Apparatus is a full face respirator which comes with a cylinder which provides necessary oxygen for breathing.
It is recommended for use in confined spaces having deficiency of oxygen such as sewers or underwater.

Chemical Resistant Gloves
Chemical resistant, nitrile gloves having flock lined inners, diamond finish grip, straight cuff, minimum thickness of 0.38 mm and length of 330 mm.
Recommended to be worn on jobs which includes continuous and intentional contact with liquid hazardous waste or chemical

Full Sleeves Shirt
High visibility full sleeves shirt made out of high wicking polyester for comfortable use in hot and humid conditions.
Presence of reflective strips for high visibility in low light conditions is optional.
Body Protection

Disposable Coveralls made out of non woven polypropylene with polyethylene barrier film.

The coveralls are breathable and protect the worker from incidental splashes of hazardous liquid waste.

Foot Protection

Chest Wader Suits made out of polyester coated with PVC, steel toe rubber shoes molded into the suit to provide complete watertightness.

These are recommended for use where the lower body of the worker will be continuous contact with hazardous liquid waste.

Body Protection

The sewage proof diving suit are completely water tight from head to toe with integrated gloves and shoes. It comes with a diving helmet and inline air blower kept above the ground. This ensures continuous supply of fresh air for prolonged work under wastewater.
Appropriate Combination of PPE

Sanitation Workers in House Keeping

Housekeeping staff involved in cleaning of washrooms
**LUNG PROTECTION**

**Face Mask**
Foldable respiratory half mask made of non-woven polypropylene. Wide adjustable elastic straps, Aluminium nose clip, Reinforcement nose foam. Recommended to be worn on job while cleaning water closets and using aerosols containing chemicals.

**HAND PROTECTION**

**Chemical Resistant Gloves**
Chemical resistant, nitrile gloves having flock lined inners, diamond finish grip, straight cuff, minimum thickness of 0.38 mm and length of 330 mm. Recommended to be worn on jobs which includes continuous and intentional contact with liquids or cleaning chemical.

**BODY PROTECTION**

**Work Shirt**
Short sleeve work shirt made out of polyester and cotton. This material is comfortable to prolonged wearing and helps to wick out moisture. The work shirt is to be worn on the job as a uniform and is combined with apron or a bib to protect from liquid splashes.
FOOT PROTECTION

Protective Footwear

Protective footwear having steel toe with upper body made out of grain leather and polyurethane outsole for protection against physical hazards.

Ankle length shoes when paired with full pants provides complete protection from incidental splashes of hazardous liquids.

BODY PROTECTION

Cargo Pants

Full length cargo pants made out of polyester and cotton. The pants should have gusseted crotch, wide belt loops and reinforced front and cargo pockets.

The cargo pants shields the legs of the worker from incidental splash of water or chemicals used for cleaning.

Bib Apron

Unisex multipurpose bib apron made of polycotton fabric, Neck strap adjusted with snap buttons for length, Back width adjustable with strap & buttons.

Recommended to be worn as worker might be exposed to incidental contact / splashes of liquids.

PPE for Sanitation Workers
Appropriate Combination of PPE

Sanitation Workers in Solid Waste Management

Workers involved in door to door collection, working at transfer station, segregation line and O&M activities at SWM plant
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<td>Face shield made out of clear Polycarbonate having size 8.0” x 15.5” and thickness of 1.0 mm. The shield should be compatible with the safety hard hat. Recommended when using sprays / aerosols.</td>
<td>Foldable respiratory half mask made of non-woven polypropylene Wide adjustable elastic straps, Aluminium nose clip, Reinforcement nose foam. Recommend in case of collection or handling organic waste and protect from hazardous gases.</td>
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**LUNG PROTECTION**

**N 95 Face Mask**
N 95 face mask with exhalation valve and straps made out of Thermoplastic Elastomer, Aluminium nose clip, Polyurethane nose foam, Polypropylene filter, Polyester shell and cover web
Recommended to be worn for jobs where there is collection or processing of dry waste or C&D waste

**HAND PROTECTION**

**Mechanical Resistant Gloves**
Mechanical resistant, nitrile coated gloves having nylon lining, specialized grip such as dotted or sandy and knitted cuffs.
Recommended to be worn for jobs which might include incidental contact with dry waste or inert waste

**Chemical Resistant Gloves**
Chemical resistant, nitrile gloves having flock lined inners, diamond finish grip, straight cuff, minimum thickness of 0.38 mm and length of 330 mm.
Recommended to be worn on jobs which includes continuous and intentional contact with wet waste or hazardous waste
**Bib Apron**
Unisex multipurpose bib apron made of polycotton fabric, Neck strap adjusted with snap buttons for length, Back width adjustable with strap & buttons.
Recommended to be worn when continuous and intentional contact with liquid hazardous waste such as organic waste segregation station.

**Full Sleeves Shirt**
High visibility full sleeves shirt made out of high wicking polyester for comfortable use in hot and humid conditions.
Presence of reflective strips for high visibility in low light conditions is optional.

**Full Length Pants**
High visibility full length pants made out of polyurethane coated breathable polyester for comfortable use in hot and humid conditions and easy cleaning.
Presence of reflective strips for high visibility in low light conditions is optional.
Protective Footwear

Protective footwear having steel toe with upper body made out of grain leather and polyurethane outsole for protection against physical hazards.

These shoes are recommended for most of the jobs in SWM. Ankle length shoes when paired with full pants provides complete protection from incidental splashes of hazardous waste like wet waste slurry or leachate or processed liquid fuel.

Protective Footwear

Protective footwear made out of poly vinyl chloride and has energy absorption heel. Anti-skid, highly flexible and extra strong for protection against physical hazards.

These shoes are recommended for jobs in SWM where the worker is going to come in continuous contact with liquid. Ankle length shoes should be paired with full pants provides complete protection.
Appropriate Combination of PPE

Sanitation Workers in Solid Waste Management

Sweepers involved in sweeping and cleaning of streets
LUNG PROTECTION

Face Mask
Foldable respiratory half mask made of non-woven polypropylene. Wide adjustable elastic straps, Aluminium nose clip, Reinforcement nose foam. Recommend to use in case of sweeping activity to protect from dust particles.

HAND PROTECTION

Mechanical Resistant Gloves
Mechanical resistant, nitrile coated gloves having nylon lining, specialized grip such as dotted or sandy and knitted cuffs. Recommended to be worn for jobs which include incidental contact with dry waste in street cleaning.

BODY PROTECTION

Full Sleeves Shirt
High visibility full sleeves shirt made out of high wicking polyester for comfortable use in hot and humid conditions. Presence of reflective strips for high visibility in low light conditions is mandatory.
FOOT PROTECTION

Protective Footwear

Protective footwear having steel toe with upper body made out of grain leather and polyurethane outsole for protection against physical hazards.

Ankle length shoes when paired with full pants provides complete protection from dusts, particulate matters and splashes of liquids.

BODY PROTECTION

Cargo Pants

Full length cargo pants made out of polyester and cotton. The pants should have gusseted crotch, wide belt loops and reinforced front and cargo pockets.

Presence of reflective strips is mandatory. The full length pants protects the worker from coming in contact with dusts and harmful substances.

BODY PROTECTION

High Visibility Safety Vests

Safety Vests made of plain or mesh polyester, 1 or 2 inch high gloss white or yellow horizontal & vertical reflective tape.

Recommended to be worn with apparel in street sweeping activity for high visibility in low light conditions.