



## **Laundry Manual**

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# COLLECTION OF SOILED LINEN

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## Procedure

### Soiled linen should be handled with care.

1. Following the removal of soiled linen / garments from resident area, domestic care and nursing staff are to place soiled linen in respective soiled linen bags.
2. Linen and clothing should be pre-sorted correctly and segregated into three easily identified bags for classification. Colour coded laundry bags provided by the facility should be  $\frac{3}{4}$  filled with the correct laundry classification.

Example	Red	-	Sheets, Towels
	Blue	-	Personal Clothing
	Yellow	-	Foul / Infectious
	Purple	-	Cytotoxic

3. Linen bags must not be overfilled.  $\frac{3}{4}$  full is adequate for manual handling.
4. Soiled linen should not be placed on the floor.
5. When full, secure toggle of laundry bag for transport to laundry.
6. Soiled linen should not be left in residential areas unattended for long periods of time.
7. Housekeepers, nursing and laundry staff should be issued with appropriate protective clothing while in contact with soiled linen.
8. Personal protective clothing includes: gloves, plastic aprons and mask.

9. Staff should be conscious of personal hygiene while dealing with soiled linen. Always thoroughly wash hands before handling clean laundry.
10. Foul/infectious laundry shall be placed in impermeable bags, easily identified as infectious to all staff.
11. Impermeable bags must not be overfilled and care must be taken to ensure the bag is securely sealed.
12. Do not drop semi-permeable bags as they may rupture.
13. If impermeable bags are not available, use suitable plastic bags to contain infectious or heavily fouled linen.
14. Soiled linen should be removed from the point of collection and delivered to the laundry as soon as the bags become full.
15. All soiled linen is classed as contaminated, potentially infectious and must be handled in the appropriate manner.

## Outcome

Soiled and infectious linen is handled appropriately, soiled items are correctly sorted prior to transfer to laundry for efficient and correct processing.

# TRANSPORT OF SOILED LINEN TO SOIL STORAGE AREA

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## Procedure

1. Soiled laundry is to be transported from resident area by nursing or domestic staff in specific collection trolleys.
2. When laundry bags are  $\frac{3}{4}$  full remove from collection trolley and place in rising-base skips within the respective area of soiled storage room/transport soiled collection bags directly to the soiled storage area of the laundry.
3. Bags containing soiled linen should be handled carefully to avoid damage or the release of contaminants.
4. When picking up  $\frac{3}{4}$  full linen bags ensure correct lifting procedures are followed.
5. Hold bag with both hands, keep feet facing direction the bags are to be moved, ensure a good hold is made and bend your knees as you are lifting ensuring your back is kept straight at all times.
6. Do not place bags behind the door area preventing door opening to soiled storage area.

## Outcome

Soiled linen is transported to the soiled storage area of the laundry efficiently, preventing personal injury by adopting correct bag loading and removal of soiled bags.

# HANDLING/SORTING OF SOILED LINEN

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## Procedure

1. When handling soiled linen, protective clothing must be worn ie gloves and aprons.
2. If laundry is being pre-sorted at the point of collection then no additional sorting is required. The bags of soiled laundry should be wheeled in a rising base skip to the front of the washer with the top of the bag facing the washer and items taken directly from the bag and into the washer.
3. If pre-sorting has not taken place at the point of collection then soil sorting should be carried out in the soiled storage area only.
4. Open linen bags of one classification only at a time for processing.
5. Heavily soiled items should be processed as soon as possible, subject to linen requirements within the home.
6. Only soiled linen is to be transported in soiled linen trolleys, appropriately marked for easy identification.
7. All soil sorting bins should contain self-leveling bin inserts in good operational order (please refer general maintenance).
8. When wash load is sorted, transfer soiled bin to wash room area.
9. Soil sort for next load.

# LOADING & PROCESSING OF SOILED LINEN

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## Procedure

1. Place soil sorting bin directly in front of washer and load.
  2. When loading / unloading, alternate operating sides to reduce continual use of same muscles.
  3. Do not mix laundry types, process similar items only.
  4. Load from front of trolley to rear.
  5. Allow one hand span above loaded laundry (ie place fist between top of washer drum and top of laundry to provide basic guide for loading).
  6. After emptying a bag of soiled laundry in a washer, place the laundry bag into the same wash load.
  7. Close door securely.
  8. Select correct chemical cycle for laundry classification.
  9. Select correct wash cycle for laundry classification.
- Foul/infectious laundry should not be sorted if received at soiled storage area in plastic semi permeable bags or plastic bags identifying linen as infectious.
  - Foul/infectious laundry should be processed as priority and washed separately.
  - When handling foul/infectious laundry, do not stack linen bags on top of semi permeable bags to avoid seams splitting.
  - Do not drop bags, to prevent breakage and aerosols.

- 100% pure wool or dry clean only items should be separated and processed according to the garments recommended instructions.
- Loads to be processed should be full loads. If a small load is all that is available, then either wait for more laundry to be available or process the small load as an exception ie once every few days. If this occurs regularly then do not process small loads as it will reduce the working life of the washer as well as waste chemicals, water etc.
- Ensure the correct setting is used. If incorrect cycle is entered, stop washer and adjust as excessive chemical or high temperature may cause damage.
- Unloading top and front of washer first, leaving furthest away linen to be unloaded last.
- If operating as a team, ensure team effort is made when loading, remove same items of clothing "together" work as a team.
- Personal clothing to be hung on clothes hangers and must be processed as soon as possible and placed on garment rack in resident room, name order as per labeled system on garment rack.
- Unidentifiable personal items must be returned to care staff.
- All personal items must be individually labeled prior to receipt at laundry.

## Outcome

Soiled linen is handled correctly in accordance with OH&S principals and processed to Australian Standard requirements.



# PROCESSING OF DRY LINEN

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## Procedure

1. Clean laundry should be unloaded into specifically clean laundry trolleys or portable tables only.
2. Unload washer, remove plastic “undryable items” such as Soluseam bags.
3. When handling clean laundry, a second pair of gloves may be worn provided they are designed to handle clean linen only.
4. Keep all clean laundry (wet or dry) within the designated clean area of the laundry.
5. Open dryer door fully, place portable folding table in front of dryer door opening.
6. When loading/unloading, alternate operating sides to reduce continual use of same muscles.
7. Load from front of trolley to rear.
8. Load one full load from correct washer only. Always choose the appropriate matched capacity dryer. Dryers are matched to washers capacity.
9. Do not split loads or add loads.
10. Ensure no loose laundry is caught around the door.
11. Check the lint filter for cleaning (the lint filter requires a minimum of two cleaning's per day).
12. Clean if required. Only clean lint filter when machine is non-operational, to manufacturers specifications routine cleaning.

13. Close lint compartment securely, if lint compartment is not closed securely, the dryer will not operate.
14. Select correct dry program for linen classification (ie red, orange or blue)

## Manual Dryer

1. Select dry temperature for linen classification.
2. Select correct dry time for linen classification.
3. Select minimum 5 minutes cool down (always allow completion of cool down cycle, to reduce the chances of spontaneous combustion).

## Outcome

Linen and personal items are dried appropriately and restored to as near new condition as possible and a high standard of dry finish is obtained.

# FOLDING OF LAUNDRY

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## Procedure

1. When the dryer cycle is complete, items should be promptly removed from the dryer and folded to prevent wrinkles forming in the laundered items.
2. Sheets, cotton cell blankets and draw sheets should be folded straight after removal from the dryer to prevent wrinkling and ensure good appearance.
3. Clean hands are to be used to fold laundered items.
4. Linen is not to come in contact with the floor during folding, sorting or distribution.
5. All laundry should be folded and then placed into the appropriate clean distribution trolley (either a personal distribution trolley or a linen distribution trolley).
6. Personal clothing should be marked with easy identifiable individual labels.

## Outcome

Quality finished products obtained.

# LINEN CHECKING AND MAINTENANCE

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## Procedure

1. Staff are to look at each item of laundry when folding to check for quality, tears, thread-bare patches and staining.
2. If tears and thread-bare patches are detected, the item should be assessed for suitability for repair.
3. Items unable to be repaired, are to be recycled, donated or disposed of as per the facility's procedures. All items that are taken out of circulation are to be documented as per the facility's procedures so as to accommodate replacement.
4. If stained items are detected, the article should be placed through a specific stain removal program with the next group of similar stained items.
5. If stained articles are frequently detected, this needs to be reported and investigated to establish if a certain process has not been followed or a failure with chemical dispensing etc.

## Outcome

Uniform laundry quality is maintained.

# DISTRIBUTION OF LINEN & PERSONALS

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## Procedure

1. Linen distribution trolleys are to be returned to linen storage areas.
2. Linen and clothing should not be carried on the top shelf of the linen trolleys or this will obstruct the vision of the person pushing the trolley.
3. Personal distribution trolleys should be returned to the laundry.
4. Personal clothing suitable for hanging can be transported back to the residents on hangers or mobile clothing racks.
5. One empty linen distribution trolley is returned back to the laundry for refilling.
6. Each linen storage location should be able to accommodate at least one linen distribution trolley in place of shelves. This alleviates double handling.

## Outcome

High standard of folded linen and personal items are returned to resident care areas. Personal items are returned correctly.

# OZONE LAUNDERING

Fact Sheet

## Ozone Technology

### The value of Ozone

Ozone laundering allows cold water washing with significantly reduced water consumption, while guaranteeing bacteria and virus kill, significant energy savings as well as increased linen life. Ozone (O<sub>3</sub>), sometimes called 'activated oxygen', contains three atoms of oxygen rather than the two atoms we normally breathe. The third oxygen atom of ozone makes it extremely reactive. This makes it the second most powerful disinfectant in the world. Ozone attacks most organic soils and kills bacteria 3200 times faster than chlorine bleach.

### What can I save?

Proven Savings*	Water	Hot Water	Internal Heating	Sewerage	Cycle Time	Total Savings Per Year
Ozone technology	40%	90%	90%	40%	15%	
Cost savings <sup>~</sup>	\$1,342	\$6,012	\$4,945	\$1,074	\$**	\$13,373

\* These savings have been proven by use of check meters based on standard wash cycles in washer extractors.

<sup>~</sup> Using average costs, based on a laundry currently using 2500 kL per year. Does not include savings from other related processes including drying and labour input.

\*\* Dependent on the current dryers and how a decrease in cycle time will affect the laundry staff times.

### Ozone technology has been successfully used on the following:

#### Aged care sector

There are currently several hundred high and low level aged care facilities utilising an ozone system in their laundries.

#### Hospitals

A number of public hospitals have installed ozone systems with great success.

#### Hotels

A number of large 4 - 5 star hotel chains across Australia are currently utilising an ozone system in their laundries.

#### Commercial laundries

Businesses with a production rate of >3 tonne per week have found the installation of an ozone system to be economically viable.

Our Water  
Our Future



## Considerations

Ozone systems are generally not suitable for public access laundries due to wash cycle set up with limited water and energy savings. This means attractive payback periods are difficult to achieve.

Ozone systems are not suitable for top loader washing machines as controls do not allow modification to achieve water savings.

Australian standards have specific regulations in regard to disinfection of textiles and the appropriate temperatures and processes required. The use of cold water requires a validation of the laundering process to ensure effective disinfection.

Features to look for	Explanation
Fail safe shut off	Ensure your supplier has a fail safe device which will shut the machine down if ozone levels are not delivered at the exact dose required.
Direct injection	Ozone is directly injected into the water at the required level.
Proven track record	Review case studies from the supplier and speak to businesses using the product.

## Common misconceptions & frequently asked questions

**Is ozone laundering only good for lightly soiled items?**

No

Ozone laundering is appropriate for heavily soiled and foul type healthcare laundry and water savings of at least 40% are currently being achieved. There are several hundred high care aged care facilities where linen is at it's most soiled with Ozone systems in operation.

**Does an ozone system use more or less chemicals?**

Neither

Chemical suppliers and ozone system suppliers have worked closely over the last few years to develop the right chemical balance and composition for cold water.

**Do I need to consult my chemical supplier when converting to ozone?**

Yes

Engaging your chemical supplier at the time of installation of ozone will ensure that doses are set in line with the ozone set system and wash cycles used. Too high a dosage of Alkali or detergent will cause yellowing of linen given reduced number of rinses. Too high bleach dose or the wrong type of bleach will fight with the ozone and the ozone affect will be limited. A good understanding of the chemical process together with a good relationship with your chemical supplier will ensure the ozone system operates at its optimum level.

**Is ozone hazardous to laundry staff?**

No

Ozone systems with direct injection feed the ozone directly into the wash. All ozone is depleted at the end of the cycle and is therefore safe for use and does not affect laundry worker's health.

**Is ozone corrosive on the machine?**

No

Advancement in ozone and machine technology have seen the development of corrosion resistant seals. No further concerns have been identified.

**Does ozone discolour white linen?**

No

Greying of linen is caused by redeposition of soiling finding it's way into the hollow fibres of cotton. In traditional laundering if the hot water temperature is not high enough (65 deg minimum), the bleach will not activate and greying will occur rapidly. Ozone activates the bleach much the same way that hot water does. If the ozone dose is too low then the linen will go grey in cold water. If the bleach pump is not dosing enough bleach then the same will occur. Ozone technology needs to be set in conjunction with chemical supply to ensure both compliment and deliver the correct balance to the system.

## What is Ozone?

Ozone occurs quite readily in nature, most often as a result of lightning strikes that occur during thunderstorms. In fact the "fresh, clean, spring rain" smell that we notice after a storm most often results from nature's creation of ozone. However, we are probably most familiar with ozone from reading about the "ozone layer" that circles the planet above the earth's atmosphere. Here ozone is created by the sun's ultra-violet rays. This serves to protect us from the ultra-violet radiation.

Ozone, ( $O^3$ ), sometimes called "activated oxygen", contains three atoms of oxygen rather than the two atoms we normally breathe. Ozone is the second most powerful disinfectant in the world and can be used to destroy bacteria, viruses and odours.

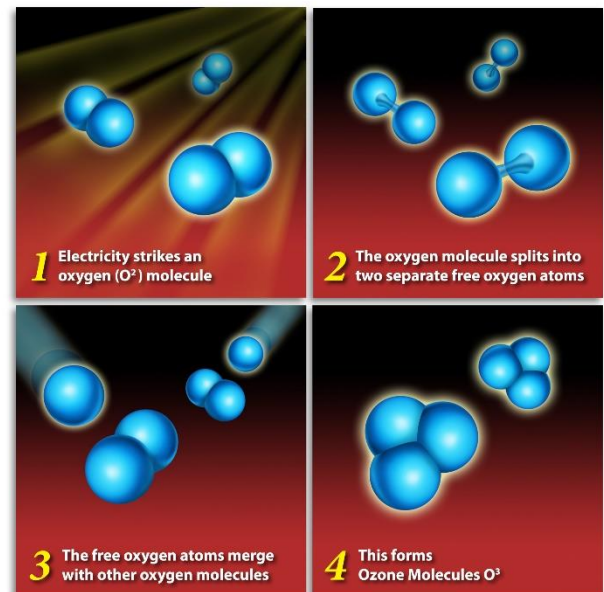
Ozone is currently used in a wide range of applications including, pools, fruit and vegetable cleaning, room deodorising, sewerage treatment and as a disinfecting process for bottled water just to name a few.

## How is ozone produced?

Ozone is created when air is exposed to either: ultraviolet light, lightening or high voltage electric arcs.

This causes some of the oxygen ( $O^2$ ) molecules to separate into 2 Oxygen (O) atoms. These atoms then combine with other  $O^2$  molecules, forming a molecule of ozone ( $O^3$ ).

On-site ozone is made by passing oxygen through a metal chamber that is charged with electricity. The electricity produces arcs that come into contact with the oxygen ( $O^2$ ) that splits oxygen molecules into single oxygen atoms. The separate atoms then attach themselves to other oxygen molecules ( $O^2$ ) thus creating ozone ( $O^3$ ).



Ozone very quickly reverts back to oxygen after it is used. This makes it a very environmentally friendly oxidant.



## What makes Ozone effective in laundry?

When used in a laundry application ozone disinfects the wash water and everything in the wash water. Because this is achieved in cold water, it results in dramatic utility cost savings. It is for this reason that the application of ozone in laundry has gained rapid international acceptance over conventional laundry methods which require substantial amounts of hot water.

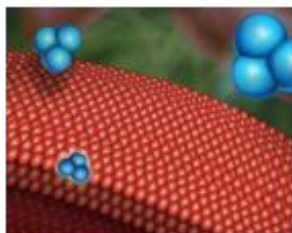
The third oxygen atom of ozone makes it extremely reactive. This makes it the second most powerful disinfectant in the world. Ozone attacks most organic soils and kills bacteria 3200 times faster than chlorine bleach.

## How do we know it is disinfecting?

The illustration below shows the destruction process of bacteria in an Ozonated wash bath.



Bacteria Cell



Ozone molecules oxidizing the cell wall and creating tiny holes



Bacteria cell disintegrates

The presence of ozone in water can be measured in parts per million (ppm) but this is not enough, we need to know that the introduction of ozone to the wash bath is going to disinfect.

Because ozone is used in many water disinfection applications worldwide, the World Health Organisation recommends that the most effective way to measure the ability of ozone to disinfect in water is by using a measurement called ORP.

## What is ORP?

ORP is a term used frequently in the water treatment & food processing industries. ORP stands for Oxidation-Reduction Potential. So what is that? The best definition to give is that ORP is a measure of the water or wash-bath's ability to break down contaminants.

It has a range of -2,000 to + 2,000 and units are in "mV" (millivolts). Since ozone is an oxidizer, we are only concerned with positive ORP levels (above 0 mV).

ORP Level (mV)	Application
0-150	No practical use
150-250	Aquaculture
250-350	Cooling Towers
400-475	Swimming pools
450-600	Hot Tubs
600	Water Disinfection (Laundry)
800	Water Sterilization

The higher the ORP level, the more ability the water has to destroy foreign contaminants such as microbes, or carbon based contaminants. The chart on the left identifies ORP levels for various applications.

ORP level can also be viewed as the level of bacterial activity of the water because a direct link occurs between ORP level and Coliform count in water. The chart to the right lists ORP levels and relative Coliform counts.

ORP Level	Coliform count in 100 ml of water
200	300
300	36
400	3
600	0

## Does the use of Ozone meet Australian Standards?

Yes it does.

The Australian Standard AS4146-2000 details two methods of disinfection in laundry; they are Thermal Disinfection (Section 3.5.2) and Chemical Disinfection (Section 3.5.3).

Thermal disinfection requires that the main wash is heated and maintained to either 71c for 3 minutes or 65c for 10 minutes.

Chemical disinfection requires a process of applying chemicals that increase the oxidative qualities of the wash bath that are then validated by swab tests conducted by the chemical supplier. The swab test is an aerobic bacterial plate count of less than 1 microorganism per cm<sup>2</sup>.

As mentioned earlier in this document we use a measurement of "ORP" to ensure that the disinfection process is set up correctly. EnviroSaver also has a failsafe system in place that will not allow the wash process to continue unless all of the factors reliant on ORP are achieved, i.e. ozone generation and delivery.

## How safe is Ozone?

There have never been any reported long-term effects of exposure to ozone, however just like many disinfectants, ozone can be harmful if it were ever ingested in large volumes. Fortunately, this is not possible with the way ozone is blended with the water.

Ozone is diffused directly into a closed loop of water which means that there is no opportunity for ozone to escape into the laundry room.

The World Health Organisation requires that no working environment have ozone levels exceeding 0.1 ppm over an eight hour period or 0.3 ppm over a 15 minute period.

EnviroSaver does not release enough ozone into the environment to exceed these levels in fact a wall mounted air conditioner produces higher amounts of residual ozone in a laundry room than the ozone system itself.

## Does ozone help with the cleaning?


No, ozone is not "the silver bullet" for cleaning. The prime purpose of ozone is to disinfect. Cleaning is the job of the chemicals.

Some people perceive that there is a saving in chemical usage, however experience has shown that whilst there may be a reduction of one type of chemical, there is most likely an increase in another.

Each installation is different because no one site uses the same chemicals or concentrations. This means that detergent, bleaches and softeners need adjusting to suit cold water washing.

## What is EnviroSaver?

EnviroSaver is an ozone washing technology designed, manufactured and supported by us right here in Australia. EnviroSaver produces the following positive outcomes:

- Saves up to 49% water and drainage costs
- Saves over 40% gas
- Saves up to 84% electricity
- Reduces the carbon footprint of your laundry by up to 70%
- Meets the Australian Standards of Laundry AS4146-2000
- Failsafe System – ensures disinfection before proceeding
- Australian Made and Owned 

# CHEMICAL SAFETY

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## Procedure

1. Make sure you have sufficient chemical supply for the day.
2. Always wear protective clothing when handling any chemicals.
3. Follow chemical suppliers information and advice on correct procedures for chemical changing.
4. When changing chemical containers, ensure correct chemical is changed.
5. Double check the chemical name you have removed and the new container you have replaced it with the ensure they correspond.
6. Become familiar with chemical documentation, hazards, type of chemical, first aid, as per the Safety Data Sheets provided by the chemical supplier.

## Outcome

Standards are maintained, safe chemical use and knowledge of first aid requirements.

# LAUNDRY EQUIPMENT FAULTS

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## Procedure

1. If any malfunction is detected, the general services handyman is to be notified as well as the laundry staff's supervisor.
2. If dryers are not functioning check that lint filters are clean and that power/gas is on.
3. If machines are running slow, general services handyman is to check water pressure.
4. Record equipment I.D. number, any error codes and program numbers used when malfunction occurred.

# FIRE SAFETY

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## Outline

Fires in the laundry are most often related to poor maintenance of lint in dryers. This lint, plus the high operating temperatures of the dryers, causes small fires that can damage machinery and clothes in the process of being laundered.

To prevent such occurrences, regular preventative maintenance and cleaning of all machines in the laundry are necessary. This is something that should be in place with the supplier of the laundry equipment.

## Procedure

1. In the event of leaking water or gas, appropriate outlets should be shut if it is safe to do so and then reported to the laundry's staff supervisor.
2. Staff are to attend programmed in-service in the use of first aid fire fighting equipment and fire procedures.

# CONTACT DETAILS

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## National Service Hotline

To obtain technical assistance or to book a service:

1800 243 477

## Laundry Advice and Sales

Laundry Consulting, Sales and general enquiries:

1300 666 289

## Web Site

[www.laundrysolutions.com.au](http://www.laundrysolutions.com.au)

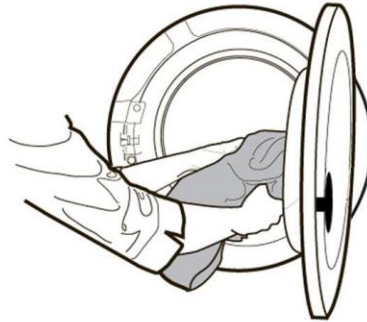
## General Email

[info@laundrysolutions.com.au](mailto:info@laundrysolutions.com.au)

# Operating Guide

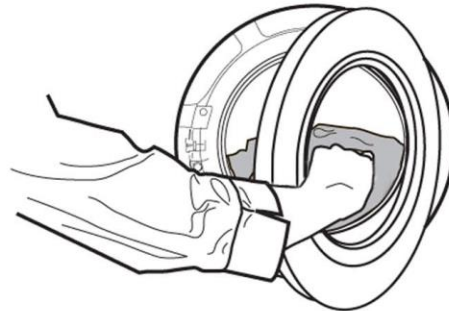
## 1. Load Laundry

Turn handle clockwise, then pull to open door. Insert the laundry into the drum.



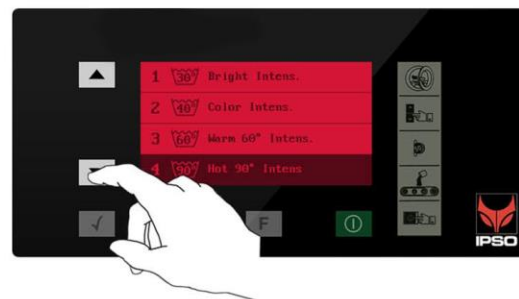
## 2. Close Door

Close the door and turn the handle anti-clockwise.



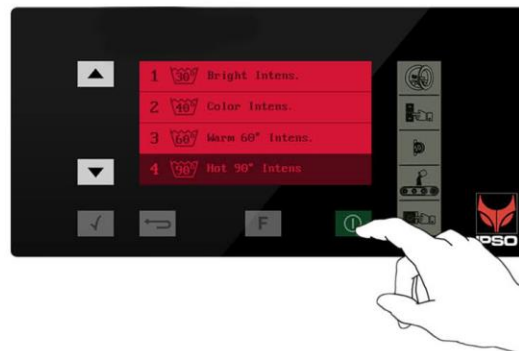
## 3. Select Program

Use the arrow keys to navigate through the programs. Choose one of the available wash programs, best corresponding to the quality of the garments.






## 4. Start Cycle

To initiate the cycle, press the green start button.






## IPSO Dryer Operating Instructions

- Open the dryer door and half fill the drum with disentangled linen
- Close door
- Select the correct drying cycle by using the up and down arrow buttons  
- Press the Start button 

CYCLE	TEMPERATURE	DRYING TIME	COOL DOWN TIME	ITEMS TO DRY
CYC- 01	85°C	MOISTURE DRY	5 Min.	Towels
CYC- 02	75°C	MOISTURE DRY	5 Min.	Personals/Sheets
CYC- 03	45°C	MOISTURE DRY	5 Min.	Delicates/Woollens
CYC- 04	85°C	30 Min.	5 Min.	Towels
CYC- 05	75°C	30 Min.	5 Min.	Personals/Sheets
CYC- 06	45°C	30 Min.	5 Min.	Delicates/Woollens
CYC- 07	75°C	10 Min.	5 Min.	Touch up

**NOTE:** Don't ever dry fabrics at a higher temperature than recommended by the manufacturer or dry linen which has been treated with inflammable solvents!!

- On the pre-set drying cycles the remaining dry time is displayed on the screen.
- On the moisture control cycles the moisture level of the linen is displayed on the screen.
- To **stop dryer** press the stop button  or open the door.
- If the main door or lint door is opened during the cycle, "door" will be displayed until the door is closed.
- When the drying time has come to an end, the cool down time is automatically started. The remaining cool down time is displayed.
- When the cool down time has come to an end, the cycle is automatically terminated.
- When the cycle is completed the linen should be taken out immediately to avoid wrinkling.

**NOTE:** Never leave anything in the dryer. Spontaneous combustion, particularly with kitchen rags, can result!



For Service Call: 1800 243 477