Case Study

Havells Sahibabad Plant: Replacement of Thermoset (DMC) material with Thermosetting (Nylon) which helps in recycling and reuse in moulding.

Challenge:

Previously we used DMC for MCCB G, for A & L frame.
DMC is a non-recyclable material.

Challenges found during manufacturing were:

1. Breakage and difficulty in rework
2. Non-recyclable
3. Low productivity
4. Rework due to heavy flashes

Steps taken:

As a responsible business organisation of India, we are trying to make continuous improvement in the field of waste management. We are following 3R technology for waste reduction (Reduce, Reuse & Recycle) . So our dedicated team came up with a new idea to recycle and reuse our material. By replacing DMC with Nylon through design & technology upgradation. Nylon is a recyclable material. We optimized our resources with the use of a recyclable material instead of a non-recyclable one.

Challenged observed during upgradation were:

1. Marketing and CRI acceptance
2. Design change
3. Product validation
4. Machine availability and load balancing
5. Colour combination
6. Renewed process parameters

Benefits achieved by this replacement include:

1. Use of eco-friendly material.
2. Reduction in waste with the use of recyclable material.
3. Use of recyclable material has rendered us more environmentally sustainable.
4. Cost saving: In addition to cycle time reduction, we have also reduced our costs.

This initiative has direct linkage to
SDG 11, 12.

- SDG 11: Sustainable cities and communities: to make our cities and human settlements inclusive, safe, resilient and sustainable. For which it is very much required to manage the generated waste.
- SDG 12: Responsible consumption and production: ensuring sustainable consumption and production patterns

From 2014-15, we have achieved 27% reduction up to 2017-18 in non-recyclable material consumption. At the same time, we have increased our recyclable material consumption.

We have improved our productivity by reducing cycle time by 60-70% per piece.

As a result we also saved cost.
by shifting to Nylon from DMC. We have achieved an annual savings of Rs. 62.8 lacs.

Case Study

Havells Neemrana Plant: Installation of five new automatic state-of-the-art German Welding Fumes Extraction System and filters Unit, Kemper at Welding Shop & Water Heater Plant

Challenge:

Previously we had only 2 nos. of fume extraction system and there were visual fumes in plant

Some of the challenges faced during procurement :

1. Selection of highest efficiency fume extraction system
2. Online Remote Monitoring
3. Selection of the right product
4. Automatic dust tray cleaning alarm
5. Visual air quality status display

Steps taken:

As a responsible business organisation of India, we are trying to make continuous improvement in the field of Occupational Health & Safety. Hence we selected a world-class welding fume extraction system to mitigate chronic health hazards.

Some of the difficulties we faced while selecting this system:

1. Multiple manufacturers
2. Selecting a proven and reliable product
3. Previous 2 nos of fume extraction system were of sub-standard quality

Advantages of installing a new fumes extraction system:

1. **Mitigate Chronic Health Hazard to employees:** We extract all welding fumes from source of generation.
2. **Zero Air Pollution:** We filter hazardous fumes particulates matters (PM 2.5) from welding fumes and cleaned air is released in the plant.
3. **High Filtration Efficiency** of all the Kemper units is more than 99.99% and it can filter up to 0.1 micron size metal dust which is carcinogenic in nature.
4. **Improve motivation of welders :** Now operators feel safe and confident while working at the Weld shop.
5. **Inside view of the Plant is very clear :** welding fumes are not visible.

This initiative has direct linkage to SDG 03, 12

SDG 03: Ensure healthy lives and promote well-being for all at all ages

Substantially reduce the number of deaths and illnesses from hazardous chemicals and air, water and soil pollution and contamination

SDG 12: Ensure sustainable consumption and production patterns

Significantly reduce their release to air, water and soil in order to minimize their adverse impacts on human health and the environment

Case Study

Havells Faridabad Plant: Improvement of Energy Performance

Challenge faced:

Non-renewable energy resources of the earth are fast getting depleted. Hence there is an urgent need to explore new sources of energy.

Steps taken:

Keeping this in mind, the Faridabad plant of Havells is switching over to renewable sources of energy such as solar energy.

We use energy from different renewable sources at Faridabad plant.

Some of the initiatives leading to energy savings:

1. Installation of 100 kWp capacity solar plant.
2. Introduction of Energy Performance Indicators (EnPI] for each department.

The main objective of EnPIs is to help in achieving individual yearly target for reduction in respective specific energy consumption.

For example, EnPIs for Paint shop for Electricity and PNG are tracked by Energy consumed per square inch of area painted.

To reduce energy consumption, we have also optimized the process and reduced downtime. Apart from this, we have also introduced several energy saving measures.

Some of the improvements achieved through this replacement include:

1. Reduction in overall energy consumption.
2. Introduction of the concept of Clean energy
3. Energy optimization is achieved through renewable energy.
4. Conservation of non-renewable energy.
5. Reduction in downtime and increase in productivity.

These initiatives have direct linkages to SDGs 13 and 7.

- SDG 7: affordable and clean energy; by energy efficient practices and renewable energy sources.
- SDG 13: climate action; by afforestation, adaptation and reduction in emission.

Energy intensity reduced by 19.07% in 2017-18 over 2016-17.

Case Study

Havells Alwar Plant: Alternative eco-friendly techniques of combustion

Challenge faced:

One of the problems we were facing in our Alwar plant was that when the furnace oil is atomized with air in the burner and fired, it produces hot flue gases which then pass into the boiler tubes to generate steam. Furnace oil fired boilers contribute to greenhouse gas emissions and secondary pollutants as well.

Problems faced:

1. Excess emission of SOx, CO_2, NOx.
2. We had to use fossil fuel for the operation.
3. Breathing problems were observed hence it it became an emergency for us to solve the issue.
4. Supreme Court banned the usage of furnace oil in National Capital Region for any power generation operation.

Steps taken:

Our dedicated team discovered that briquette is a better alternative to address this issue.

The efficiency of the new combined fire tube and water tube boiler is determined by using indirect method approach, also called as heat-loss method. The efficiency of boiler when fired with briquettes is found to be lower than when fired with furnace oil.

Valuable benefits from this change include:

1. A significant reduction in the operating cost of boiler is achieved by fuel conversion technology.
2. Emissions of furnace oil boiler as compared to briquette boiler. The Sulphur oxides (SOx), Nitrogen oxides (NOx), Carbon dioxide (CO_2) emission levels are low while firing briquettes. Carbon monoxide (CO) emission level due to incomplete combustion of fuel is more when firing briquettes. But it can be controlled by an optimized combustion process.
3. This conversion of fuel utilizing briquettes in boiler offers many economic, social and environmental benefits.

This alternative method also helps us in achieving SDG 13. (Afforestation, Emissions Reduction, Adaptation)

1. Conserving fossil fuel reserves i.e., reducing petroleum oil requirement by use of renewable source of energy can be achieved.
2. Reduction in the amount of greenhouse gas emissions i.e. CO_2 emission reduction is obtained.
3. Higher CO emissions are observed during briquette combustion. However the emissions due to incomplete combustion can be effectively controlled by an optimized combustion process, i.e., enhanced mixing.
4. Reduction of secondary pollutants i.e., SOx and NOx is achieved

This initiative helps us to achieve a total savings of INR 16,53,423.

Case Study

Havells Haridwar Plant: Reduction in power consumption through VFD

Challenge:
Power consumption at our paint shop at Haridwar plant was very high. The overall unit consumption at this unit was 190 Unit/hr. resulting in high power consumption for the entire process.

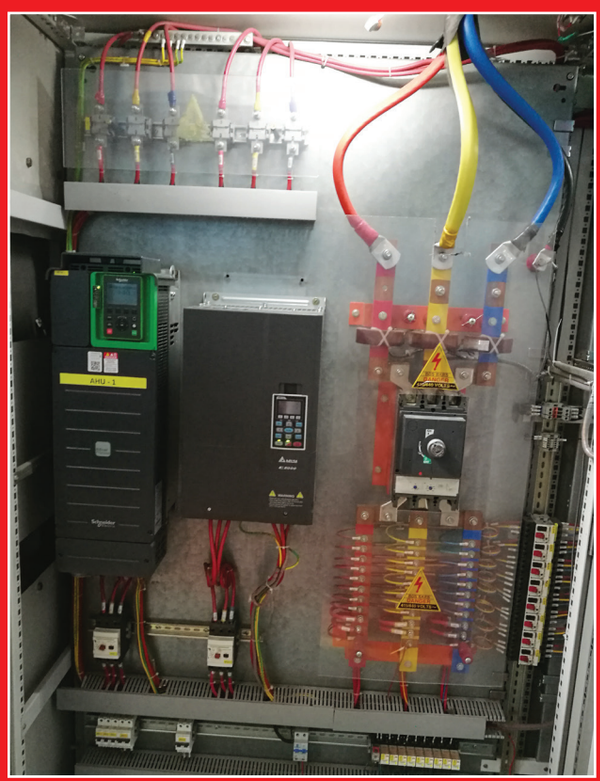
Steps taken:
To solve this problem, our dedicated team has installed a Variable Frequency Drive in the liquid paint shop that has reduced the power consumption at this facility. A variable frequency drive is a type of motor controller that drives an electric motor and has the advantage of changing the frequency and voltage supplied to the electric motor. A VFD facilitates running of a motor. at the required load instead of running it at peak load all the time.

Impacts of the transformation:
The installation of VFD results in reduced power consumption as compared to the previous system.

Related SDG's
This action aligns with SDG 12: Responsible Consumption and Production: Ensuring Sustainable Consumption & Production Patterns.

Remarkable reduction in electricity consumption at liquid paint shop from 190 unit/hr to 160 unit/hr.

- **Annual electricity saving @ Rs. 6.22/unit.**
- **Total savings achieved Rs. 113,97,260**



Case Study

Havells Baddi Plant: Towards Zero Accidents:

Challenge:

There are total 40 power presses in our Baddi plant. Rendering the operations of these presses 1OO% safe is a major H&S concern area.

Difficulties identified:

1. Though these are power presses, setting the tool is a manual process to be done by employees before operation commences.
2. As the tool setting process is manual the operator is vulnerable to dangers of cutting or injury.

Steps taken:

Havells India Limited is committed to providing provide an ultimate safe work environment for all its employees with zero accidents.

Our dedicated team explored solutions and finally came up with integrated power presses with engineering control which could stop power operation if the hands of the operator inadvertently touched the machine.

This was achieved through:

1. Light Curtain Type IV installed at power presses. Designed to automatically stop the press cycle (stroke) if the sensing field is interrupted.
2. Mechanical Guards with Electrical interlocks installed to stop press when guards are opened:
   a. Guard shall prevent entry of hands or other body parts into the point-of-operation by reaching through, over, under or around the machine.
   b. Guard shall offer visibility of the point-of-operation, consistent with requirements of the operation being performed.
   c. Guard shall be fixed with fasteners which cannot be easily removed by the operator to minimize the possibility of misuse or removal of essential parts.

Benefits accruing through this initiative include:

1. 100% safety while working at power presses.
2. Safety interlocks are designed and programmed not to be bypassed.
3. Full automation of pressing operation.

Related SDGs:

1. SDG 3: Good health and wellbeing: Ensure health and safety and promote wellbeing for all irrespective of age.
2. SDG 8: Decent work and economic growth: promoting sustained, inclusive and sustainable economic growth, full and productive employment and decent work for all.

100% workplace safety for press operators.