



## **MEDIGLOVES LIMITED**

### **Recovery of Steam Condensate and Reuse as Alternative Source of Hot Water**

#### **SUMMARY OF THE OPTION**

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Medigloves Limited is a Thai producer of more than 70 million pairs of quality surgical and cleanroom latex gloves per year for the domestic and international market.

Latex gloves produced from the dipping process are conveyed for drying and curing/aging in the hot-air-oven installed above the dipping process. Steam is fed into the heat exchanger attached to the oven, to produce hot air that is used for drying and curing/aging latex gloves in the oven. Outlet steam then becomes condensate, which the company recovers and reuses as boiler feed water.

Hot water of 55 – 80°C is currently generated by injecting steam into tanks with cool water. This water is used for showering, washing, and leaching steps in the dipping processes, and subsequently discharged to the wastewater treatment plant. Because hot water is generated in batches, it is also possible to use the collected steam condensate as an alternative source of hot water.

The company's Team found that the recovered condensate could be better used as an alternative source of hot water for the dipping process, because the production of hot water for the dipping process is more expensive than heating fresh boiler feed water. Any excess condensate could still be used as boiler feed water.

It was estimated that each year, the recovery of condensate and reuse as an alternative source of hot water for the dipping process could save more than 160,200 liters of fuel oil (from reduced generation of steam), resulting in US\$ 36,000 savings, and 480 tons CO<sub>2</sub> emissions reductions.

This option was found to be technically feasible, but a more detailed analysis of this option is needed before it can be implemented. This includes a design of the new system and collection of the following information:

- Boiler: boiler efficiency, steam generation per day, oil consumption per day, flue gas temperature at the outlet of the boiler
- Feed water: amount of feed water needed for the boiler without condensate recovery, current feed water temperature
- Condensate: tons of condensate recovered per hour or per day
- Dipping process: amount of hot water required for dipping process per day, and quality criteria of water obtained through the direct injection of steam
- Costs of electricity, waste water treatment and water

#### **KEY WORDS**

Chemicals, Thailand, Steam Distribution and Utilization, Condensate Recovery

## FOR MORE INFORMATION

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