

## Session 14

### Waste water and sludge

The objective of proper waste water management is to prevent harm to the environment and human health arising from such waste. Safe disposal of sludge as part of the overall chemicals management in company.

The implementation of this session will require about 1 hour and 50 minutes.

#### **Learning outcomes**

At the end of this session, the participants will be able to

1. understand requirements on Wastewater Management and testing
2. identify and calculate the output load of effluent
3. manage the effluent load by understanding and managing the production planning

#### **Training materials required**

Presentations	Handouts/Worksheets	Reading
PPT 14_Waste water and sludge	Workbook session 14	REMC Company Handbook – sections 6.9

#### **Session plan**

Time in min	Content/Activity	Reference/Material
5	Introduction <ul style="list-style-type: none"><li>• Present learning outcomes and overview of the session</li></ul>	<i>PPT 14_Waste water and sludge slides 1 – 3</i>
8	Presentation - Sludge and waste water <ul style="list-style-type: none"><li>• Discuss about sludge, classification and disposal options of sludge</li><li>• Waste water management, resource efficiency and benchmark for textile</li></ul>	<i>PPT 14_Waste water and sludge slides 5-13</i>
20	Presentation - Present ppt 14 selected slides and discuss waste water testing parameters that are required by Rewe, Tchibo, ZDHC or local authority.  Group exercise: waste water testing requirement <ul style="list-style-type: none"><li>• Discuss your experience with wastewater testing.</li><li>• What were your challenges?</li><li>• What solutions have you found to positive test results?</li></ul> Ask the participants present their findings to the peers and share the knowledge.	<i>PPT 14_Waste water and sludge slides 14-17</i> <i>work book session 14</i>
15	Presentation - Requirements from The ZDHC Wastewater Guidelines <ul style="list-style-type: none"><li>• Discuss about benefit, scope, level of this guidelines</li><li>• Waste water parameters</li><li>• Sampling points and methodology for waste water</li><li>• Data reporting</li></ul>	<i>PPT 14_Waste water and sludge Slides 18-37</i>

<b>Time in min</b>	<b>Content/Activity</b>	<b>Reference/Material</b>
10	Presentation - Wastewater and Sludge Test reports <ul style="list-style-type: none"> <li>• Interpreting a wastewater &amp; sludge testing report</li> <li>• Find out substitution opportunities from test reports</li> </ul>	<i>PPT 14_Waste water and sludge Slides 38-43</i>
7	Presentation - Identification of Output Load of Effluent <ul style="list-style-type: none"> <li>• Discuss legal discharge standards</li> </ul>	<i>PPT 14_Waste water and sludge 44-48</i>
20	Presentation - Effluent Load Calculation <ul style="list-style-type: none"> <li>• Explain how to calculate effluent load</li> </ul> Group exercise: Review the production recipe and the SDS of all chemicals provided <ul style="list-style-type: none"> <li>• Go through the SDS information and create the chemical inventory.</li> <li>• Calculate the approximate COD values of the water discharged to the equalisation tank (input of ETP).</li> <li>• Compare to the ETPs input and discharge information for COD and BOD with your calculations.</li> <li>• What does the information tell you?</li> </ul> Ask group to present the result.	<i>PPT 14_Waste water and sludge 49-53 work book session 14</i>
25	Presentation - Impact on Production Planning <ul style="list-style-type: none"> <li>• Explain "Clean Factory Approach"</li> <li>• How production planning link with effluent treatment</li> </ul> Group exercise: What is your experience on reduction of waste through improved production planning?	<i>PPT 14_Waste water and sludge 57-63  work book session 14</i>
5	Closing <ul style="list-style-type: none"> <li>• Q&amp;A</li> <li>• Summarise key points of the session</li> </ul>	<i>PPT 14_Waste water and sludge 57-63 Slides 64-65</i>