Example
The example detailed below describes a production unit for a painting line. The equipment is the paint booth which has air emissions and produces waste (filters with paint). There is also a washing operation process equipment that produces a water discharge.

Table of Contents
Define ..................................................................................................................................... 2
Create Paint: Material List: ............................................................................................. 2
Create Paint: Material Detail: ......................................................................................... 2
Create Equipment: Equipment List................................................................................. 3
Create Production Unit: Production Unit List ............................................................. 3
Create Production Unit: Production Unit Detail ............................................................. 3
Create Product – Product List ......................................................................................... 4
List Intermediate Products per Product – Intermediate Product List.............................. 4
Create Discharge Point – Water Discharge Point List.................................................... 4
Create Waste Type – Waste Type List ........................................................................... 5
Create Waste Type – Waste Type EPA Codes ............................................................... 5
Link ..................................................................................................................................... 5
Relate Production Unit to materials ................................................................................ 5
Relate Production Unit to Intermediate Product ............................................................. 5
Relate Production Unit to air .......................................................................................... 6
Relate Production Unit to water ...................................................................................... 6
Relate Production Unit to waste ..................................................................................... 7
Inputs................................................................................................................................... 7
Enter Water Usage .......................................................................................................... 7
Enter Air Usage ................................................................................................................ 7
Enter Material Usage ...................................................................................................... 8
Outputs ................................................................................................................................ 9
Enter Wastewater Discharge ........................................................................................... 9
Enter Waste Shipment ...................................................................................................... 10
Enter Product Volume .................................................................................................... 11
Reports .............................................................................................................................. 11
Materials Reports .......................................................................................................... 11
Air Reports ...................................................................................................................... 12
Wastewater Reports ....................................................................................................... 13
Waste Management Reports .......................................................................................... 14
Mass Balance Report ...................................................................................................... 14
Define

Create Paint: Material List:
- Click Define – Material – Material List OR Materials toolbar icon
- click NEW to make blank row and type in paint data and SAVE

Create Paint: Material Detail:
- Click More Detail or Double Click
- Type in multiple rows of CAS number constituents using NEW to make blank lines
- Use binoculars to look up cas if needed
- Click on Synonym tab to fill in optional aliases or synonyms
- Click on Container tab to fill in purchasing unit of measure data
Create Equipment: Equipment List

- Click Define – Equipment – Equipment List OR Equipment toolbar icon
- Click NEW twice to make 2 blank rows and type in paint booth and washer data and SAVE.
- Note that paint booth category should be Paint Spray Booth.

Create Production Unit: Production Unit List

- Click Define – Equipment – Production Unit List OR Prod Unit toolbar icon
- Click NEW to make a blank row and type in painting line data and SAVE.

Create Production Unit: Production Unit Detail

- Click More Detail or Double Click
- Fill in the department for the production unit in the header.
- Type in the 2 equipment ids (or use binoculars to search) established above to associate them with the painting line production unit
**Create Product – Product List**
- Click Define – Outputs – Product List
- Click NEW to make a blank row and type in product data. Note that total weight of product is used for computations in output and mass balance reports.

**List Intermediate Products per Product – Intermediate Product List**
- Double click on the Product model to view the list of related intermediate products (Product Recipe).
- Click NEW to make a blank row and type in intermediate products data. Note that weight % that the intermediate product makes up of the whole product is used for computations in output and mass balance reports.

**Create Discharge Point – Water Discharge Point List**
- Click Define – Outputs – Water Discharge Points List
- Click NEW to make a blank row and type in discharge point data
Create Waste Type – Waste Type List
- Click Define – Outputs – Waste Type List
- Click NEW to make a blank row and select from the standard waste types or type in your own name. Indicate if the waste is hazardous.

Create Waste Type – Waste Type EPA Codes
- If the waste is hazardous, then click on EPA Codes button
- Click NEW to make a blank row and select from the list of standard EPA Codes.

Link
Relate Production Unit to materials
- Click Link – Production Unit OR Link Pr Unit toolbar icon
- Select the paint from DEFINE and assign to the production unit.

Relate Production Unit to Intermediate Product
- On the Products tab establish the link to the products that are painted or produced at this production unit.
- Select the entire product model or individual intermediate products. Click NEW to list as many lines as appropriate.
**Painting Line Production Unit Example**

**Relate Production Unit to air**
- On the **Emission** tab establish the Prod Unit as a painting operation and input the VOC or TSP control efficiencies if known (otherwise leave as 0%). Determine the unit of measure the paint is typically painted with.

![Emission Tab](image)

- On the **Air Factors** tab select the paint and the pollutant. Enter the pollutant content. Note the algorithm description describing the paint computations.
- Click NEW to make a blank row to put in the next pollutant.

![Air Factors Tab](image)

**Relate Production Unit to water**
- On the **Discharge** tab assign flow #1, pick the DSN and describe the discharge.

![Discharge Tab](image)

- On the **Water Poll** tab select the flow established on the discharge tab and select a pollutant to document the concentration of the pollutant in the discharge.

![Water Poll Tab](image)
Relate Production Unit to waste

- On the Waste tab select waste type established earlier.

Inputs

Enter Water Usage

- Click Inputs – Material Usage – Enter Water Use OR Input Water toolbar icon
- Select the production unit and type in quantity of water used per frequency and SAVE.

Enter Air Usage

- Click Inputs – Material Usage – Enter Fuel/Paint/Other Air Use OR Input Air toolbar icon
- Select the production unit and paint established above and type in usage date/qty and SAVE.
Click Update/View Emissions to see the air emissions created by the SAVE usage button or click the Air Out toolbar icon to view emissions by other filters.

Enter Material Usage

- Click Inputs – Material Usage – Enter Other Material Use OR Input Matl toolbar icon
Painting Line Production Unit Example

- Select the production unit and other materials used in the process and type in usage date/qty and SAVE.

![Painting Line Production Unit Example](image)

**Outputs**

**Enter Wastewater Discharge**

- Click Outputs – Enter Wastewater Discharge OR Water Out toolbar icon
- Select the production unit and flow established above and type in quantity of Wastewater discharged per frequency and SAVE.

![Enter Wastewater Discharge](image)

- Click Update/View Pollutants see the water discharge created by the SAVE Discharge button or click Output - Wastewater Discharge with Pollutants to view discharge by other filters.

![Update/View Pollutants](image)
Painting Line Production Unit Example

**Enter Waste Shipment**

- Click Outputs – Waste Management OR Waste Out toolbar icon
- Click NEW button in header to create new shipment and fill in shipment activity date and click SAVE.
- Double click to enter the detail.
• Enter the vendor and manifest data as appropriate. Click SAVE.
• Select the waste type established for the production unit. Put in weights and costs and select the production unit to allocate back. Click SAVE.

Enter Product Volume
• Click Outputs – Enter Product Volume
• Select the product model and/or intermediate product and the production unit and type in quantity of products produced per frequency and SAVE. Note that the LBS of product is computed based on the weight or %weight indicated during DEFINE.

Reports

Materials Reports
• Click Reports – Materials – Used – Weight per CAS Number to view how many LBS of the CAS number constituents in the paint were used.
Air Reports
• Click Reports – Air – Usage – Weight per Material with 12 month Rolling to view how many LBS of Paint was used with the previous 11 months plus current compared next to the current.

• Click Reports – Air - Emissions – Weight per Pollutant with 12 month Rolling to view how many pollutant was emitted during the paint usage.
### Painting Line Production Unit Example

#### Wastewater Reports

- Click Reports – Water – Discharge - Weight per Material to view how many LBS of wastewater discharged (converted from gallons).

<table>
<thead>
<tr>
<th>Source ID</th>
<th>Usage Month/Year</th>
<th>Usage Date</th>
<th>Original Usage Qty / Units</th>
<th>Frequency</th>
<th>Usage Qty</th>
<th>Usage Cost</th>
<th>Material</th>
</tr>
</thead>
<tbody>
<tr>
<td>PB11 Line</td>
<td>11-2007</td>
<td>11/30/07</td>
<td>11,000.0 Gallons</td>
<td>Monthly</td>
<td>11,000.0</td>
<td>$20.50</td>
<td>WATER</td>
</tr>
</tbody>
</table>

**Monthly Total:** $20.50 | 11,000.0 Lbs.  
**Grand Total:** $20.50 | 11,000.0 Lbs.

- Click Reports – Water - Discharge – Weight per Pollutant to view how many LBS of pollutant was included in the wastewater discharge (converted from ppm).
**Waste Management Reports**

- Click Reports – Waste Reports and choose Activity Costs – to view LBS of waste per shipment grouped by waste type.

![Waste Management Report](image)

**Mass Balance Report**

- Click Reports – Mass Balance to view all of the inputs and outputs data from this scenario. Choose input data source as Usage and note the incoming paint and water usage and the outgoing product volume, air emissions, wastewater discharge (with pollutants), and waste shipment.

![Mass Balance Report](image)
## Painting Line Production Unit Example

### (IN): Material Usage: Cost and CuFt per Gas

<table>
<thead>
<tr>
<th>Material ID</th>
<th>Material Name</th>
<th>Usage Cost</th>
<th>Usage Qty in CuFt</th>
</tr>
</thead>
<tbody>
<tr>
<td>GAS</td>
<td>Natural Gas</td>
<td>$0.00</td>
<td>9,230.320</td>
</tr>
<tr>
<td>GAS</td>
<td>Natural Gas</td>
<td>$2,827.00</td>
<td>84,145.840</td>
</tr>
<tr>
<td><strong>Total Usage:</strong></td>
<td></td>
<td><strong>$2,827.00</strong></td>
<td><strong>93,376.1600</strong></td>
</tr>
</tbody>
</table>

### (OUT) Product: Weight per Material Report

<table>
<thead>
<tr>
<th>Material ID / Name</th>
<th>Product Model</th>
<th>Intermediate Product No.</th>
<th>Product Output in Lbs.</th>
</tr>
</thead>
<tbody>
<tr>
<td>FAC PAINT1</td>
<td>Krylon Ultra Flat Black 1602</td>
<td>Painted Blade</td>
<td></td>
</tr>
<tr>
<td></td>
<td>IP101</td>
<td>Painted Part 101</td>
<td>33,025.000</td>
</tr>
<tr>
<td></td>
<td>IP103</td>
<td>Painted Part 103</td>
<td>199,920.000</td>
</tr>
<tr>
<td></td>
<td><strong>Total for V100:</strong></td>
<td></td>
<td><strong>233,745.000</strong></td>
</tr>
<tr>
<td></td>
<td><strong>Total for FAC PAINT1:</strong></td>
<td></td>
<td><strong>233,745.000</strong></td>
</tr>
<tr>
<td>GLIDDEN1</td>
<td>Glidden Eggshell Paint</td>
<td>Painted Blade</td>
<td></td>
</tr>
<tr>
<td></td>
<td>V100</td>
<td>Painted Part 101</td>
<td>25,625.000</td>
</tr>
<tr>
<td></td>
<td><strong>Total for V100:</strong></td>
<td></td>
<td><strong>25,625.000</strong></td>
</tr>
<tr>
<td></td>
<td><strong>Total for GLIDDEN1:</strong></td>
<td></td>
<td><strong>25,625.000</strong></td>
</tr>
<tr>
<td></td>
<td><strong>Total Product Weight:</strong></td>
<td></td>
<td><strong>259,370.000</strong></td>
</tr>
</tbody>
</table>

### (OUT) Air Emissions: Lbs. per Pollutant

<table>
<thead>
<tr>
<th>Pollutant</th>
<th>Emission Qty in Lbs.</th>
</tr>
</thead>
<tbody>
<tr>
<td>CO</td>
<td>28.0000</td>
</tr>
<tr>
<td>NOx</td>
<td>733,240.8953</td>
</tr>
<tr>
<td>PM10</td>
<td>84,683.9000</td>
</tr>
<tr>
<td>SOx</td>
<td>1,634,606.0000</td>
</tr>
<tr>
<td>TSP</td>
<td>163.1630</td>
</tr>
<tr>
<td>VOC</td>
<td>3,443.7480</td>
</tr>
<tr>
<td><strong>Total Air Emissions Weight:</strong></td>
<td><strong>2,456,094.8063</strong></td>
</tr>
</tbody>
</table>

### (OUT): Wastewater: Cost and Gallons converted to Lbs.

<table>
<thead>
<tr>
<th>Material (Water)</th>
<th>Wastewater Cost</th>
<th>Wastewater Qty in Lbs.</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Total Wastewater:</strong></td>
<td>$3,610.00</td>
<td>51,711.7666</td>
</tr>
</tbody>
</table>

---

Total Usage: $514,175.00  83,925.8891
## Painting Line Production Unit Example

### (OUT): Wastewater Discharge: Lbs. per Pollutant

<table>
<thead>
<tr>
<th>Pollutant</th>
<th>Discharge Qty in Lbs.</th>
</tr>
</thead>
<tbody>
<tr>
<td>ALUMINUM</td>
<td>0.9601</td>
</tr>
<tr>
<td>BARIUM</td>
<td>0.0251</td>
</tr>
<tr>
<td>CADMIUM</td>
<td>3.9203</td>
</tr>
</tbody>
</table>

Total Wastewater Discharge Weight: 4.9054

### (OUT) Waste: Cost and Lbs. per Waste Type

<table>
<thead>
<tr>
<th>Waste Type</th>
<th>Hazardous?</th>
<th>Waste Cost</th>
<th>Waste Weight in Lbs.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Acids, Non-hazardous</td>
<td></td>
<td>$0.00</td>
<td>22,222.0000</td>
</tr>
<tr>
<td>Alkalis</td>
<td>✓</td>
<td>$22.00</td>
<td>2,000.0000</td>
</tr>
<tr>
<td>Filters with Paint</td>
<td>✓</td>
<td>$0.00</td>
<td>6,004.0000</td>
</tr>
<tr>
<td>Sludge(paint) from paint booth water curtain systm</td>
<td>✓</td>
<td>$0.00</td>
<td>2,222.0000</td>
</tr>
</tbody>
</table>

Total Waste: $22.00  32,448.0000