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SED Reporting Tool – System Documentation

1. Overview

The Solvent Emissions Directive (SED) is a piece of legislation, now implemented into National Law of all European Union (EU) Member States, which aims to control and reduce the emissions of Volatile Organic Compounds (VOC's) into the atmosphere. VOC's typically make up the solvent part of paints and other coatings and the SED will affect boat and ship yards that use greater than 5 Tonnes of VOC per year for metal/plastic coating operations or greater than 15 Tonnes of VOC per year for wood coating operations.

The SED requires the yard to keep a solvent management plan which is an inventory of all paint and solvent used at the yard in any one year and this spreadsheet tool allows the user to do this in an easy to use format. It also allows the yard to carry out the 'Solvent Reduction Scheme' which is a compliance option available for yards to follow to meet the emission limits set out in the SED.

Yards that have coating operations for both metal/plastic substrates and wood substrates are advised to set up two separate inventories since the emission limits set out in the SED are different for both categories. It is in the yards interest to do this as they are permitted to use a larger amount of VOC for wood coating operations than they are for metal/plastic coating operations.


2. Access the Reporting Tool

From the desktop, open the SED Reporting Tool program group.

Double click on the SED Reporting Tool shortcut, the tool has been created to run in Microsoft Excel.

When you open the SED Reporting Tool you may see the following message, you must select the Enable Macros button. The spreadsheet will not function correctly if the macros are not enabled.
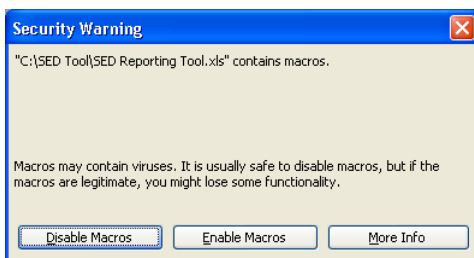
This message will only be displayed if your security settings are set to medium or low. See the following page for information on checking your security settings.
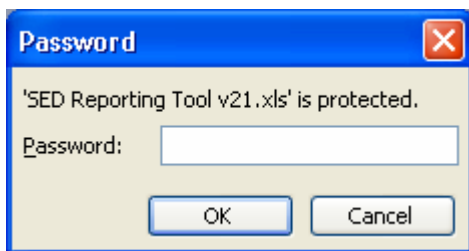
You will be prompted for a password. Type in **sed** and press OK.

To check the security settings in Excel, select Tools and Options.
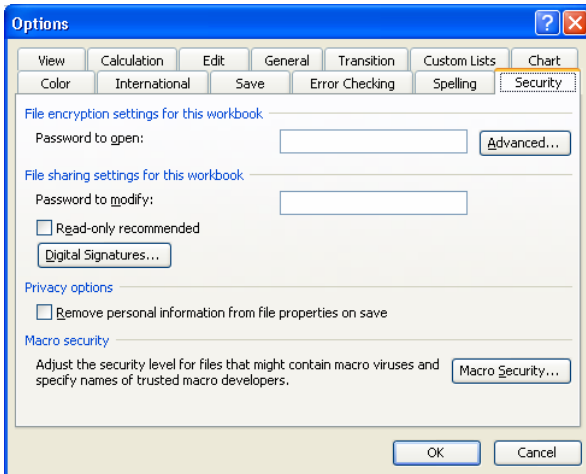
Select the Security tab and then choose Macro Security.
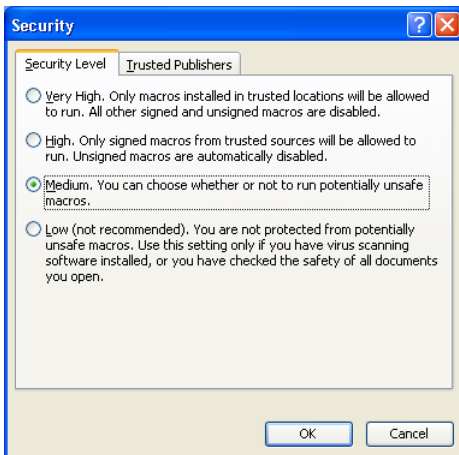
For the purposes of running this spreadsheet, you need to set your security level to medium.

3. Back Up Data

We cannot guarantee that this tool is totally free from errors. We therefore strongly recommend that you make regular backups of the spreadsheet in order to ensure you retain your information.

4. The Process

The process below outlines the key steps required by the yard, to maintain VOC information in the SED Reporting Tool.

```
                    ┌─────────────────┐
                    │  Create new     │
                    │  spreadsheet    │
                    └────────┬────────┘
                             ↓
                    ┌─────────────────┐
                    │  Setup yard     │
                    │  details        │
                    └────────┬────────┘
                             ↓
                    ┌─────────────────┐
                    │  Setup starting │
                    │  stock list     │
                    └────────┬────────┘
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    ┌───────────┐ ┌───────────┐ ┌───────────┐ ┌───────────┐
  │ │ Maintain  │ │ Maintain  │ │ Maintain  │ │ Maintain  │ │
    │ stock     │ │ products  │ │ waste     │ │ reclaimed │
  │ │ deliveries│ │ used      │ │ products  │ │ products  │ │
    │           │ │ elsewhere │ │           │ │           │
  │ └───────────┘ └───────────┘ └───────────┘ └───────────┘ │
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                             ↓
                    ┌─────────────────┐
                    │  Perform stock  │
                    │  take           │
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                    ┌─────────────────┐
                    │  Review SED     │
                    │  data           │
                    └────────┬────────┘
                             ↓
                         ◇ End of
              No  ◇   reporting   ◇
                         ◇ year?
                             │ Yes
```
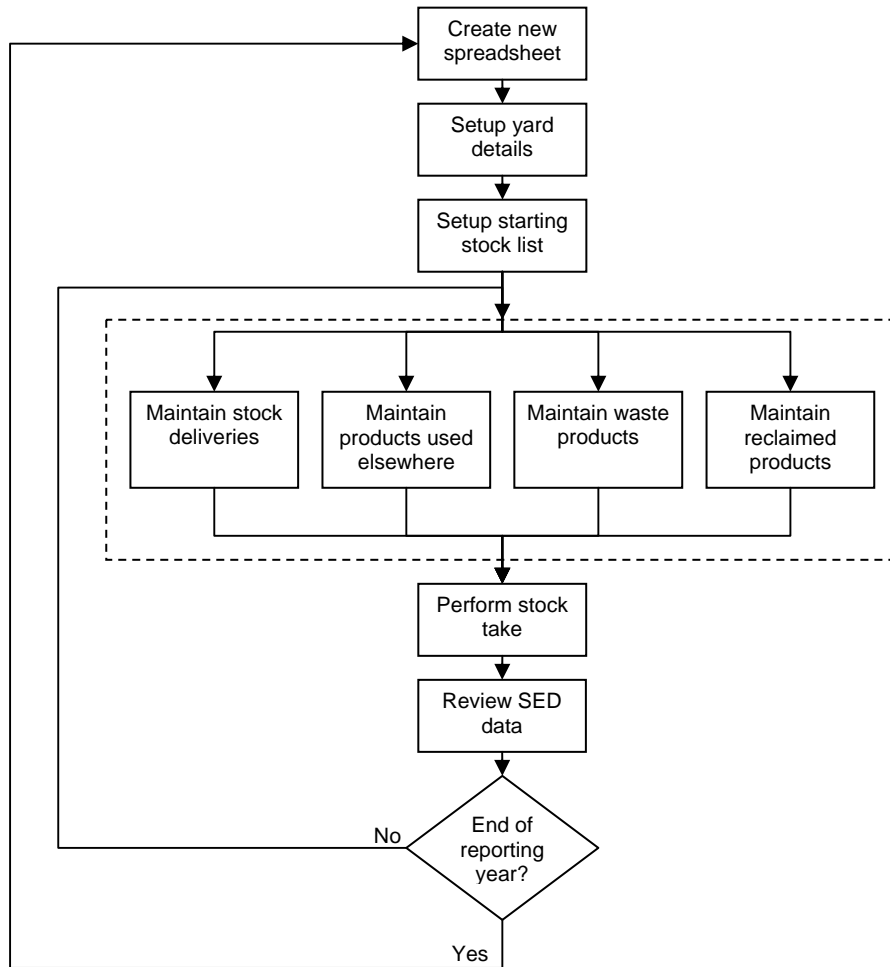
5. Setup Yard Details

The SED Installation worksheet allows the yard to enter relevant detail about themselves. If using the tool as the Solvent Reduction Scheme it's important that the correct installation type (metal/plastic OR wood) and size are selected – the relevant target emissions will then be displayed automatically. The target emissions that feature in this tool are taken from the SED but be aware that individual countries may impose tighter targets – this should be checked with the relevant authority. The data from this sheet will feature on reports that can be printed off by the yard, if and when needed, to prove compliance.

How
1. Select the SED Installation worksheet.
2. Type in the yard name.
3. Type in the yard country location.
4. Select the installation type from the drop-down list for which this spreadsheet is applicable. There are 2 options to choose from, metal and plastic or wood.
5. Select the installation size from the drop-down list. This list will contain 2 options to choose from, but will be different depending on the installation type you have chosen.
6. The Target Emissions field will be automatically populated with the SED default value for the installation type and size chosen. However if the local authority has set targets different to the default shown, then manually type in the correct target emission in the Target Emissions field.
7. The Target Ratio field will be automatically populated with the SED default value for the installation type and size chosen. However if the local authority has set targets different to the default shown, then manually type in the correct target ratio in the Target Ratio field.
8. Type in the Start Date for the reporting period. This should be the date on which the starting stock quantities have been established (see section 6).
9. Save the spreadsheet using the standard Excel save options.

6. Setup the Starting Stock List

All products currently in-stock at the yard location should be setup in the Stock List worksheet and starting quantities recorded. The Starting Stock column must only be used when the spreadsheet is first setup, any products received once the spreadsheet is in use must be treated as a delivery. Data for products which are multi pack products must be 'as mixed', so specific gravity, VOC's, solids weight (if applicable) and volumes must be relevant to the mixed product.

How
1. Select the Stock List worksheet.
2. Add all in-stock products (see 6.1).
3. Type in the starting stock values in litres for each product. The number of litres entered must be for the mixed pack quantities.
4. Save the spreadsheet using the standard Excel save options.

6.1 Add a Product

Product information needs to be manually entered. When adding a water based product it is important to indicate this as indicated below.

How
1. Select the Add Manual Product button from the Stock List worksheet.
2. Select the product type from the drop-down list of available options.
3. Type in the product name.
4. A reference number will be generated by the system.
5. There is an optional field available to enter a local product code if required in Yard Reference.
6. If the product is water based, select the water based check box.
7. Type in the Specific Gravity in kg/L.
8. Type in either the VOC value in g/L or in g/kg in the appropriate field.
9. If the product is water based, you need to manually type in the solids weight in g/L. For non water based products the system will calculate the value.
10. Press the Add button.
11. Repeat the previous steps to add further products or press the Close button to exit the screen.

7. Amend Stock List Details

7.1 Edit the Details of a Product in the Stock List

How
1. Select the product name cell for the manually entered product you wish to edit.
2. Select the Edit Selected Product button from the Stock List worksheet.
3. Make the required amendments and press Update.

7.2 Delete a Product from the Stock List

A product should only be deleted from the Stock List if added in error and no stock values have been recorded.

How
1. Select the product name cell for the product you wish to delete.
2. Select the Delete Selected Product button from the Stock List worksheet.
3. When prompted, select yes to continue to delete the product.

8. Maintain Deliveries of Stock

All products received at the yard location should be added in the Deliveries worksheet. This includes any products brought to the yard and used by other applicators, these must be treated as a delivery.

How
1. Select the Deliveries worksheet.
2. Check if the product received already exists in the Stock List worksheet. If not then you need to add the product to the stock list, refer to section 6.1.
3. Record the product delivery details (see 8.1).
4. Save the spreadsheet using the standard Excel save options.

8.1 Add a Delivery

How
1. Select the Add Delivery button from the Deliveries worksheet.
2. Select the product from the drop-down list of stock list products.
3. Select Change to amend the date if required.
4. Type in the volume of product received in litres. This must be the mixed pack volume.
5. Notes can be added in the notes field if required, if not this field can be left blank.
6. Press the Add button.
7. Repeat the previous steps to add further products or press the Close button to exit the screen.

8.2 Delete a Delivery

How
1. Select the product name cell for the product you wish to delete.
2. Select the Delete Delivery button from the Deliveries worksheet.
3. When prompted, select yes to continue to delete the product.

9. Maintain Details of Products Applied Outside of the Installation

It's important to subtract products which for whatever reason are not actually used in the yard. It is to the advantage of the yard to do this as it will subtract from the overall VOC usage at the end of the year and will affect compliance. Use the Used Off Site worksheet to record all products used outside of the installation, perhaps sent to another site, by entering the volumes in the worksheet.

How
1. Select the Used Off Site worksheet.
2. Record the product details (see 9.1).
3. Save the spreadsheet using the standard Excel save options.

9.1 Add a Used Off Site Product

How
1. Select the Add Product button from the Used Off Site worksheet.
2. Select the product from the drop-down list of stock list products.
3. Select Change to amend the date if required.
4. Type in the volume of product in litres. This must be the mixed pack volume.
5. Notes can be added in the notes field if required, if not this field can be left blank.
6. Press the Add button.
7. Repeat the previous steps to add further products or press the Close button to exit the screen.

9.2 Delete a Used Off Site Product

How
1. Select the product name cell for the product you wish to delete.
2. Select the Delete Product button from the Used Off Site worksheet.
3. When prompted, select yes to continue to delete the product.

10. Maintain Waste Product Details

Similar to products used off site, any product disposed of as waste can be subtracted from the overall VOC usage figures, by entering the volumes in the Waste worksheet. Waste paint and solvent mixtures may need to be analysed so they can be entered correctly in the worksheet. The values needed are Specific Gravity in kg/L and VOC in g/L or g/kg.

	A	B	C	D	E	F	G	H	I
1			Add Product	Delete Product					
2									
3									
4									
5	Waste								
6									
7	Ref	Yard Ref	Product Name	Date	Volume (L)	Specific Gravity (kg/L)	VOC (g/L)	VOC (g/kg)	Solids Weights (g/L)
8	M001	1	Product 1	22/10/2007	10	1.700	500	294	1200
9	ZZMXP		Waste Mixture	11/10/2007	50	1.200	600	500	600
10									

How
1. Select the Waste worksheet.
2. If the waste product is a specific product, refer to 10.1 to record the product details.
3. If the waste product contains more than 1 product or is a mixture of solvent and product waste, refer to 10.2 to record the waste mixture details.
4. Save the spreadsheet using the standard Excel save options.

10.1 Add a Waste Product – Specific Product

How
1. Select the Add Product button from the Waste worksheet.
2. Select the product from the drop-down list of stock list products.
3. Select Change to amend the date if required.
4. Type in the volume of product in litres. This must be the mixed pack volume.
5. Notes can be added in the notes field if required, if not this field can be left blank.
6. Press the Add button.
7. Repeat the previous steps to add further products or press the Close button to exit the screen.

10.2 Add a Waste Product – Waste Mixture

How
1. Select the Add Product button from the Waste worksheet.
2. Select Waste Mixture from the drop-down list.
3. Select Change to amend the date if required.
4. Type in the volume of product in litres.
5. Type in the Specific Gravity in kg/L.
6. Type in either the VOC value in g/L or in g/kg in the appropriate field.
7. Notes can be added in the notes field if required, if not this field can be left blank.
8. Press the Add button.
9. Repeat the previous steps to add further products or press the Close button to exit the screen.

10.3 Delete a Waste Product

How
1. Select the product name cell for the product you wish to delete.
2. Select the Delete Product button from the Waste worksheet.
3. When prompted, select yes to continue to delete the product.

11. Maintain Reclaimed Product Details

As in the case of product used off site and waste material, it will be beneficial to the yard to maintain mixed solvent and paint intended for 'reclaim' or 'recycling'. Mixture intended for reclaim need to be analysed and data entered in the worksheet. The values needed are Specific Gravity in kg/L and VOC in g/L or g/kg. Any solvent mixture that is recycled and brought back onto site must be entered as a delivery.

How
1. Select the Reclaimed worksheet.
2. If the product to be reclaimed is a single solvent product, refer to 11.1 to record the product details.
3. If the product to be reclaimed contains more than 1 solvent or is a mixture of solvent and product, refer to 11.2 to record the reclaimed mixture details.
4. Save the spreadsheet using the standard Excel save options.

11.1 Add a Reclaimed Product – Single Solvent

How
1. Select the Add Product button from the Reclaimed worksheet.
2. Select the solvent from the drop-down list. This will only contain thinners/solvents from the stock list.
3. Select Change to amend the date if required.
4. Type in the volume of solvent in litres.
5. The remaining product data fields will be automatically populated.
6. Notes can be added in the notes field if required, if not this field can be left blank.
7. Press the Add button.
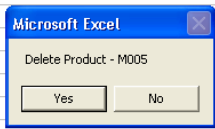8. Repeat the previous steps to add further products or press the Close button to exit the screen.

11.2 Add a Reclaimed Product – Reclaimed Mixture

How
1. Select the Add Product button from the Reclaimed worksheet.
2. Select Reclaimed Mixture from the drop-down list.
3. Select Change to amend the date if required.
4. Type in the volume of product in litres.
5. Type in the Specific Gravity in kg/L.
6. Type in either the VOC value in g/L or in g/kg in the appropriate field.
7. Notes can be added in the notes field if required, if not this field can be left blank.
8. Press the Add button.
9. Repeat the previous steps to add further products or press the Close button to exit the screen.

11.3 Delete a Reclaimed Product

How
1. Select the product name cell for the solvent/product you wish to delete.
2. Select the Delete Product button from the Reclaimed worksheet.
3. When prompted, select yes to continue to delete the product.

12. Record Stock Take Details

VOC values can only be accurately calculated when the system knows how much product has been used. It is therefore important that you perform a stock take at intervals.

How
1. Select the Stock List worksheet.
2. You will see a number of stock take columns available, from 1 to 12. In the next available stock take column record the stock take date, for example for the 1st stock take record the date in cell J9.
3. Record the volumes of all in-stock products in the stock take column. The number of litres entered must be for the mixed pack quantities.
4. Save the spreadsheet using the standard Excel save options.

13. View Summary of VOC Values

A summary of VOC values can be viewed within the Summary worksheet. The most accurate values will be available after a stock take has been performed. This sheet can be printed as a report if and when required, this will allow the yard to demonstrate compliance to authorities. The consumption column on this sheet shows the yard their size in terms of SED. This will be of interest after one year and will indicate whether or not they are using greater than 5 tonnes or 15 tonnes of VOC per annum for example.

	Product Reference Number	Yard Product Reference	Product Name	Specific Gravity	VOC	VOC	Solids Weight	Starting Stock	Deliveries	Used off Site	Finish Stock	Product Used	Waste	Reclaimed	Product for Subtraction	Total Volume of Product Used	Total Weight of Product Used	Total Weight of Solids
	Ref	Yard Ref	Name	kg/L	g/L	g/kg	g/L	L	L	L	L	L	L	L	L	L	kg	kg
Antifouling																		
M001		1	Product 1	1.700	500	294	1200	100.0	20.0	5.0	80.0	35.0	10.0	0.0	10.0	25.0	42.5	30.0
M002		2	Product 2	1.600	480	300	1120	100.0	0.0	0.0	75.0	25.0	0.0	0.0	0.0	25.0	40.0	28.0
Boatcare																		
M003		3	Product 3	1.000	300	300	700	100.0	0.0	0.0	50.0	50.0	0.0	0.0	0.0	50.0	50.0	35.0
Finishes																		
M004		4	Product 4	1.400	500	357	900	100.0	20.0	10.0	60.0	50.0	0.0	0.0	0.0	50.0	70.0	45.0
Thinners & Solvents																		
M005		5	Product 5	1.000	1000	1000	0	100.0	50.0	0.0	50.0	100.0	0.0	50.0	50.0	50.0	50.0	0.0
Waste Mixture																		
				1.200	600	500	600	0.0	0.0	0.0	0.0	0.0	50.0	0.0	50.0	-50.0	-60.0	-30.0
Reclaimed Mixture																		
				0.900	800	889	100	0.0	0.0	0.0	0.0	0.0	0.0	50.0	50.0	-50.0	-45.0	-5.0
			Totals					500.0	90.0	15.0	315.0	260.0	60.0	100.0	160.0	100.0	147.5	103.0

VOC as %age of Total Consumption (excluding water)
Target value should be

Ratio of VOC to Solids
Target value should be

How
1. Select the Summary worksheet.
2. Select the stock take date required in the date drop-down list from one of the below options:
   a. If you choose the starting stock date, the report generated will show you the total VOC values for all products in stock at the start of the reporting period.
   b. If you choose one of the available stock take dates, the report will generate VOC values for product usage up to the chosen stock take date.
   c. If you leave the date blank, the report generated will look at all data and show a current status of VOC values.
3. Select the Update Report button. This will generate a summary of all the products available in the stock list. If applicable the summary will show all deliveries, used off site, waste and reclaimed solvent values up to the date chosen. You will notice that any Waste or Reclaimed Mixtures will be summarised at the end of the summary.
4. Save the spreadsheet using the standard Excel save options.

A summary of how the yard is currently performing against targets is generated when the summary is created.

Totals	500.0	90.0	15.0	315.0	260.0	60.0	100.0	160.0	100.0	147.5	103.0	44.5
					VOC as %age of Total Consumption (excluding water)							30.17
						Target value should be						27.30
					Ratio of VOC to Solids							0.432
						Target value should be						0.375

14. Print a VOC Report

When the required report has been generated (refer to section 13) you can print the results.

How
1.   Select the Summary worksheet.
2.   Select Print Report to create a preview of the report.
3.   Select to print the report as required.

Or

1.   Select the SED Installation worksheet.
2.   Select Print to create a preview of the report.
3.   Select to print the report as required.

The standard report consists of 2 pages, one which is an output from the SED Installation worksheet and the other which is an output of the Summary worksheet.
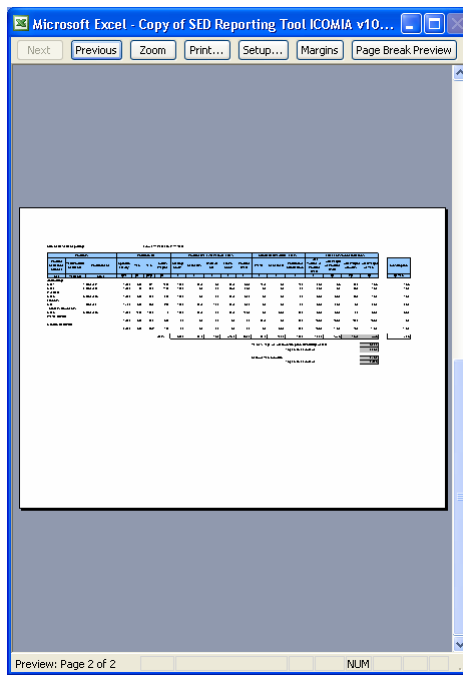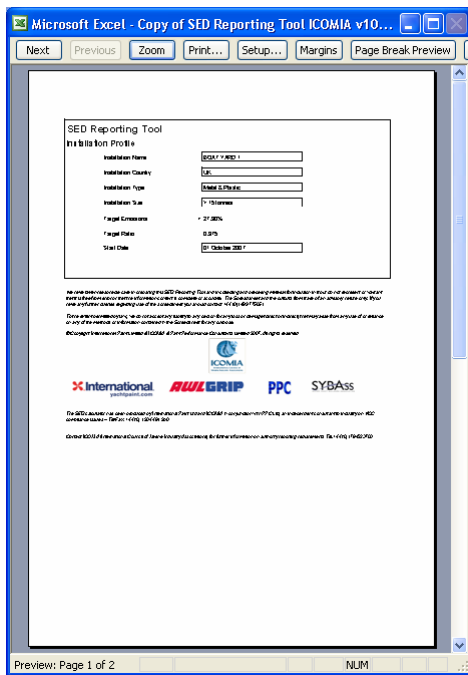
Appendix 1: Calculations Used in Spreadsheet

Stock List

Field	Calculation
VOC (g/L)	VOC (g/kg) x Specific Gravity (kg/L)
VOC (g/kg)	VOC (g/L) / Specific Gravity (kg/L)
Solids Weight (g/L)	(Specific Gravity (kg/L) x 1000) – VOC (g/L)

Summary

Field	Calculation
Product Used (L)	Starting Stock + Deliveries – Used Off Site – Finish Stock
Product for Subtraction (L)	Waste + Reclaimed
Total Volume of Product Used (L)	Product Used – Product for Subtraction
Total Weight of Product Used (kg)	Total Volume of Product Used x Specific Gravity (kg/L)
Total Weight of Solids (kg)	Total Volume of Product Used x (Solids Weight (g/L) / 1000)
Total Weight of VOC (kg)	Total Volume of Product Used x (VOC (g/L) / 1000)
Consumption	(Total Volume of Product Used + Waste) x (VOC (g/L) / 1000)
VOC as %age of Total Consumption (excluding water)	(Total of Total Weight of VOC (kg) / (Total of Total Weight of Solids (kg) + Total of Total Weight of VOC (kg))) x 100
Ratio of VOC to Solids	Total of Total Weight of VOC (kg) / Total of Total Weight of Solids (kg)