WELCOME TO VisiXcel

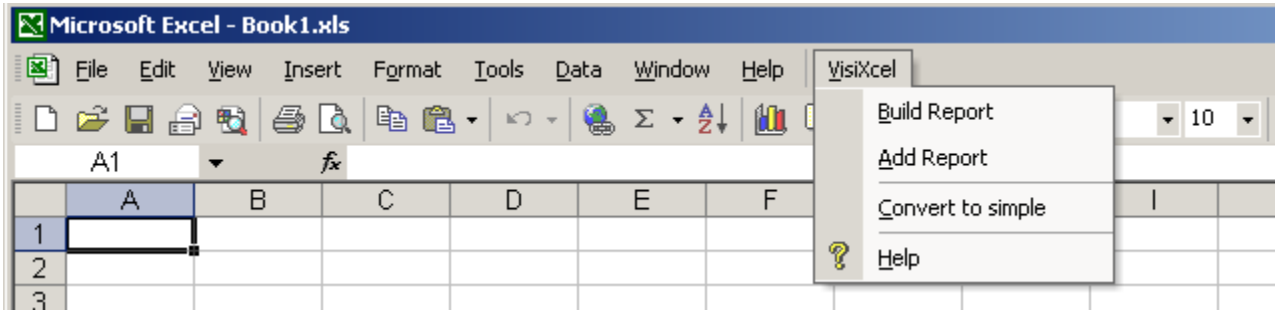
This new software tool enables VisiMix users to integrate VisiMix *reports* in standard Excel worksheets and to use Excel capabilities for analyzing VisiMix results, comparing different equipment designs and process configurations, creating user's models and correlations, and integrating VisiMix with other software products and databases.

VisiXcel lets you:

Browse through database of VisiMix reports and select reports that you want to incorporate in an Excel table;
Select VisiMix input and output parameters that you want to include in the table;
Sort out selected VisiMix projects by selected parameters;
Get notification of problems in selected configurations (if there are any)

How to Use VisiXcel

After installing VisiXcel, the **VisiXcel** option will appear in your standard Excel menu next to the Excel Help option as seen in the figure below:

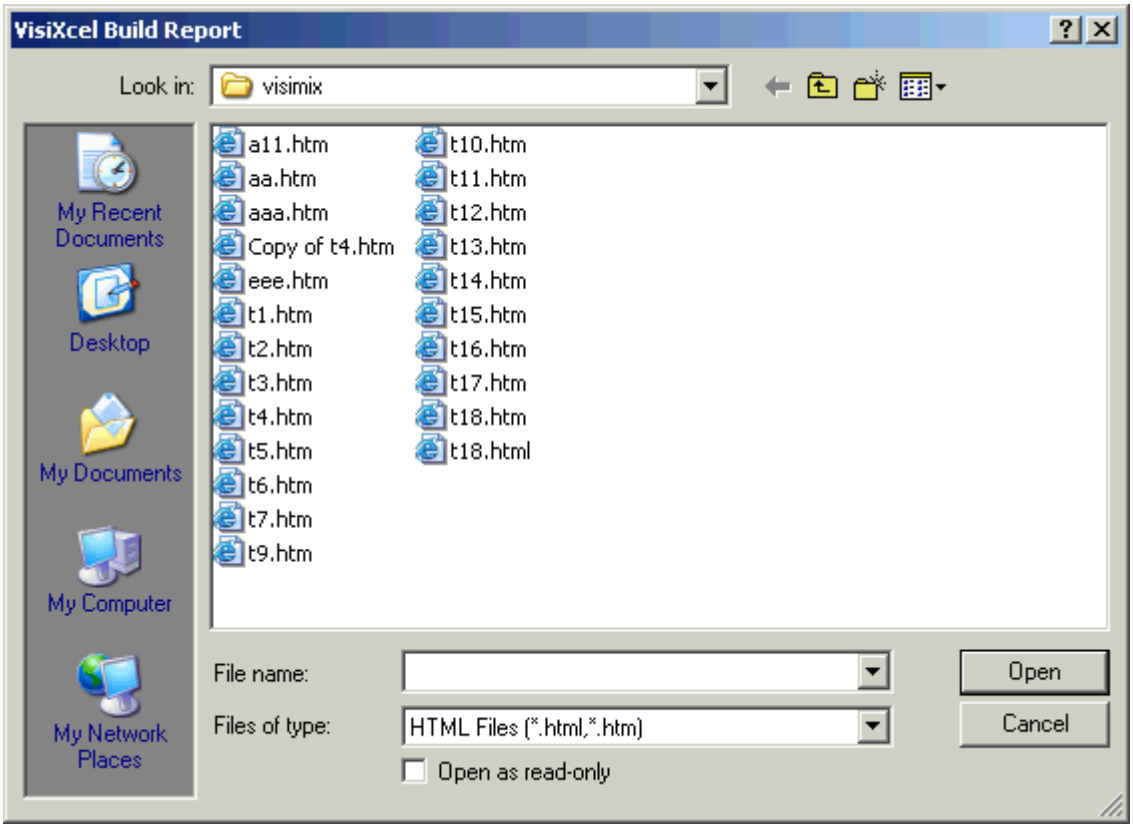


The VisiXcel option contains the following functions: **Build Report**, **Add Report**, **Convert to simple**, and **Help**.

Build Report

Use this function to define the desired VisiMix parameters for your Excel table, and build the first entry in the table based on the selected VisiMix report.

Select **Build Report**, go to the folder on your computer containing VisiMix reports, and select the desired report in the Build Report dialog:

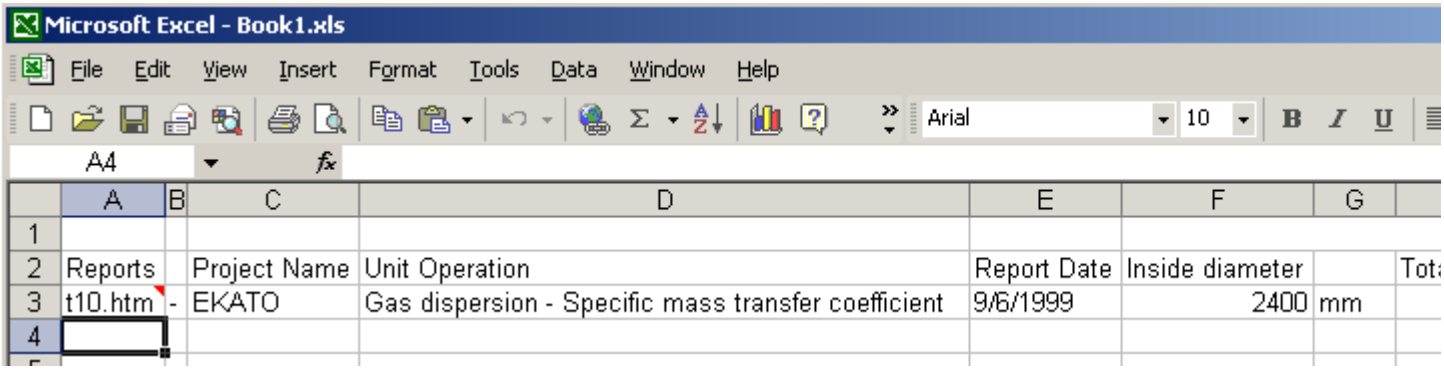


If you select an html file which is not a VisiMix report, VisiXcel issues the following message:

When you select a VisiMix report file, and click **Open**, the selected report appears:

You can now scroll to examine the entire report. If you decide that you do not want to include the selected report at this stage, click on **Change file** to return to the list of report files and make a new selection. Once you have made sure you have selected a report that you need, check all the parameters and units you want to include in your Excel table, as well as Project and report name if required, and click on **Submit Report**. You can check individual parameters in a table of parameters, or the entire table.

The data you have selected will appear in your Excel worksheet as follows:



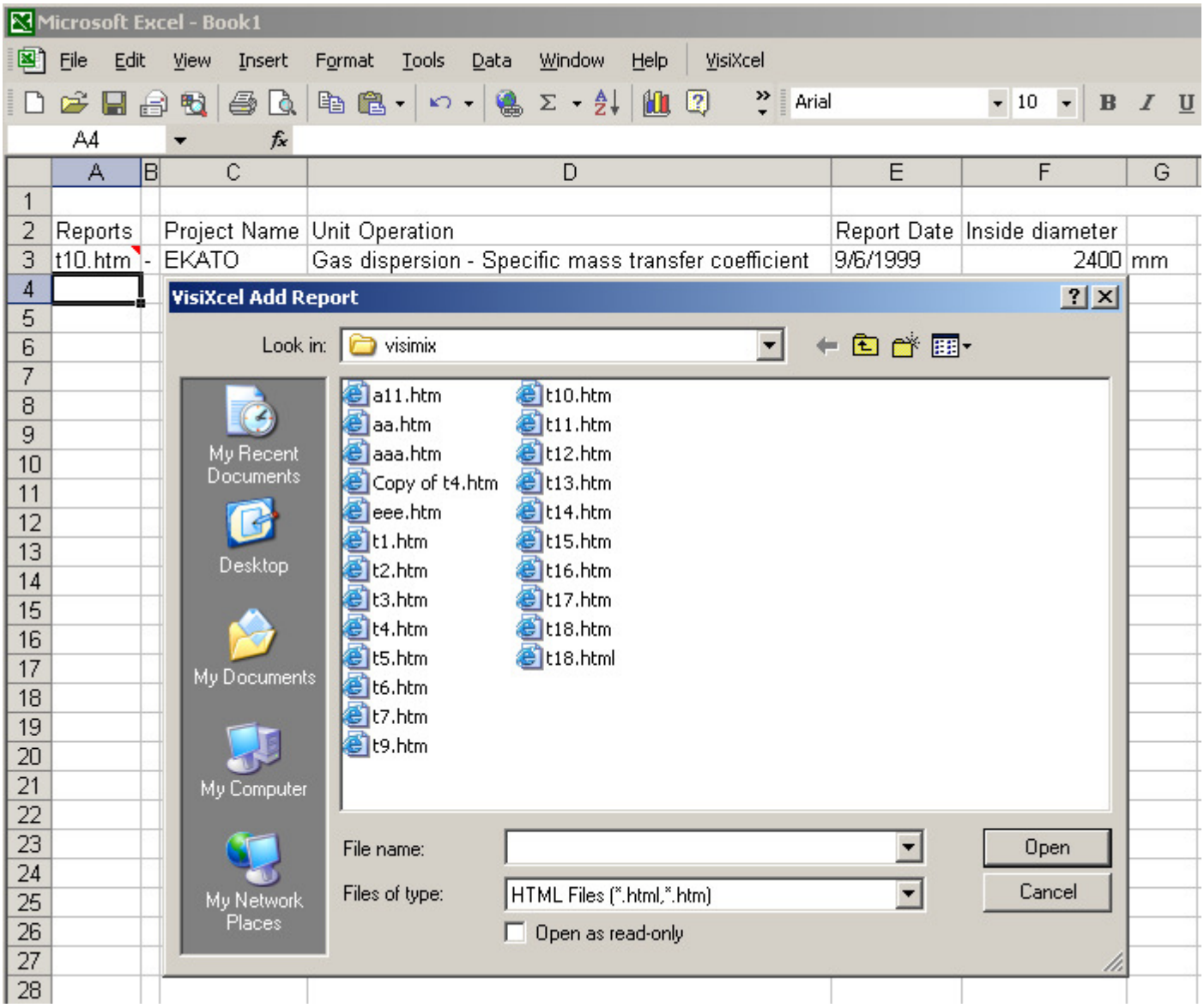
The name of the report appears in the first column of the table. The first row contains the names of the VisiMix report tables (TANK, IMPELLER, RESULTS, etc.), the second row contains the parameters, the third – values and units.

The data you have selected in the first VisiMix report determines the structure of your Excel table for all additional reports you may wish to add to the current worksheet.

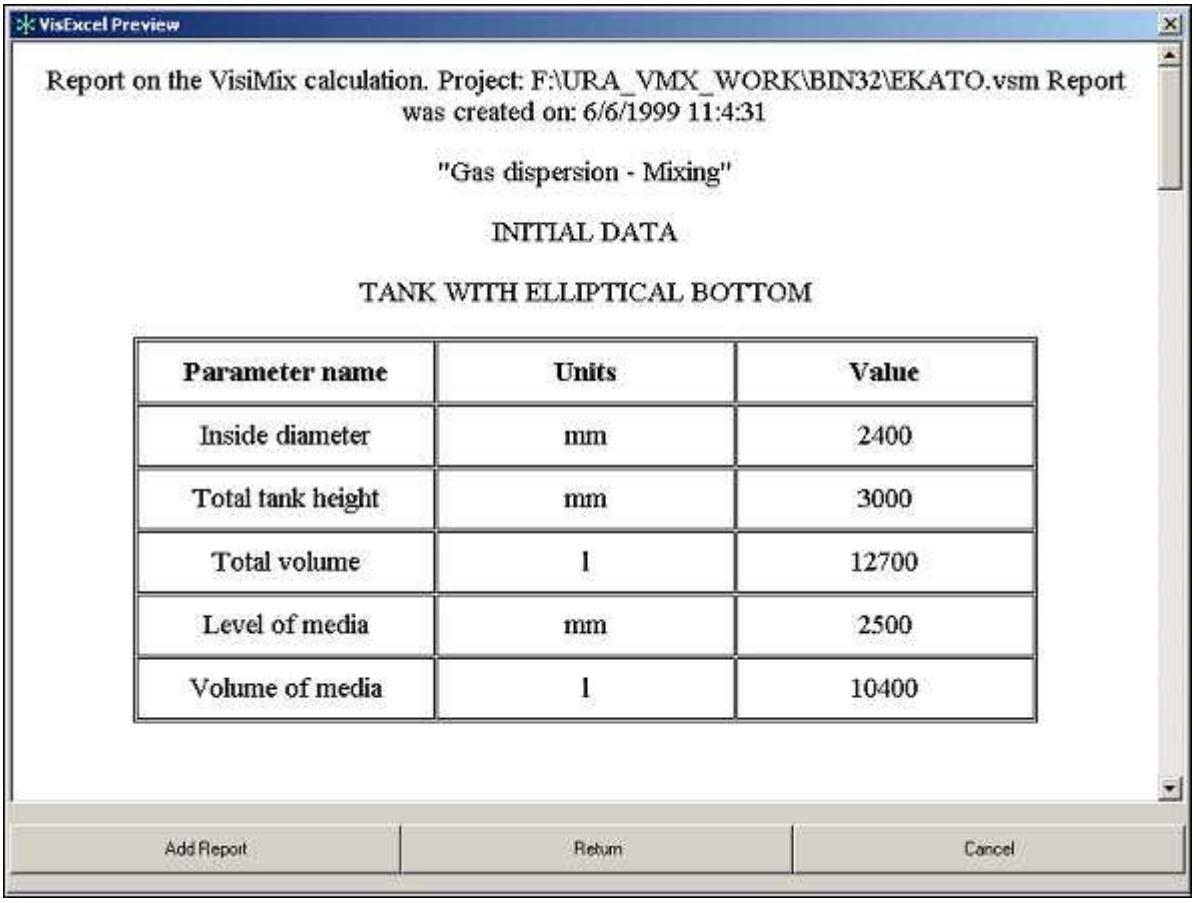
Add Report

Use this function to add more VisiMix reports to your Excel worksheet.

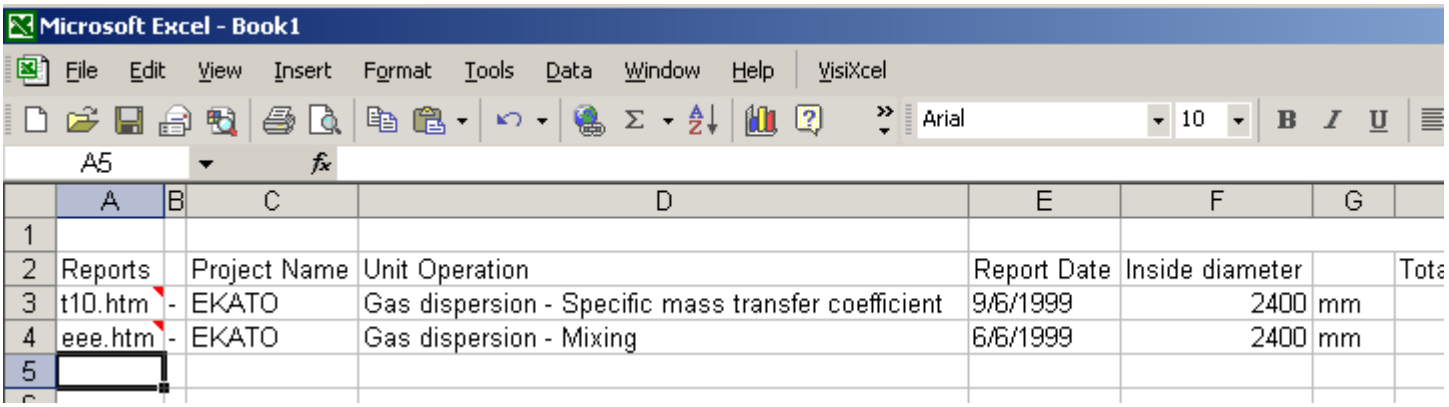
Click on **Add Report**, select another VisiMix report, and click **Open**:



In the window that appears, click on **Return** if you decide to add another report instead of the one you have selected, and click on **Add Report** to confirm the selection:

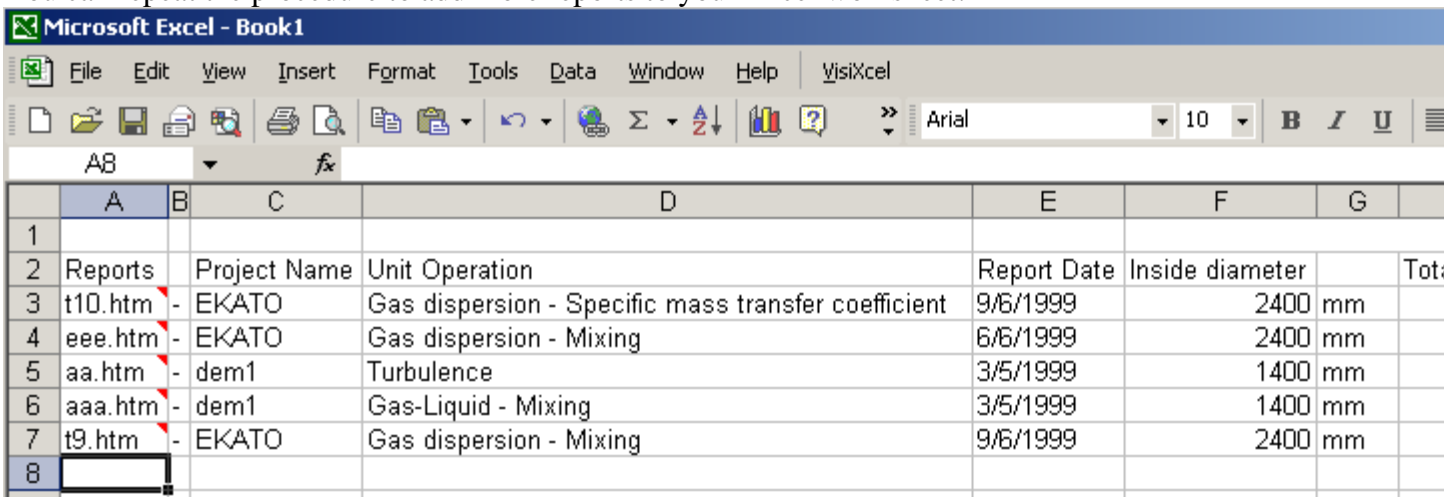


A new line will be added to your worksheet:



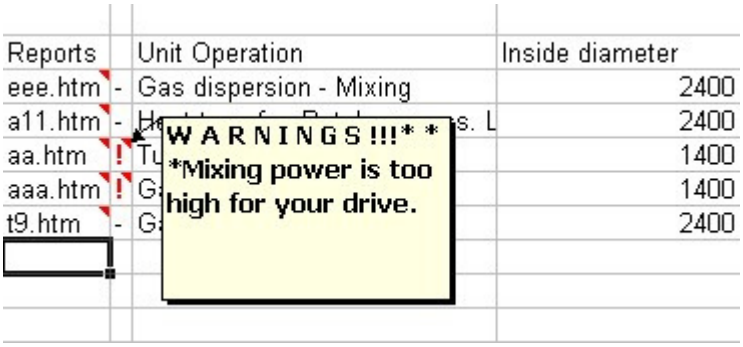
The parameters of the report you have added will be entered under the headings set up when building the first report. If some of the parameters are absent from the second report, the cells will remain empty.

You can repeat the procedure to add more reports to your Excel worksheet:



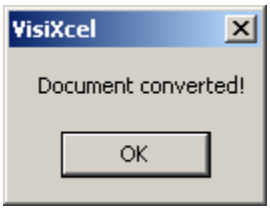
Note that some of the reports in your Excel worksheet may be marked with a “!” mark appearing in the second

column. This means that VisiMix had detected problems in the configurations related to the reports in question. To see the appropriate VisiMix warning, place the cursor on the cell with the exclamation mark:



Convert to Simple

Use this function to convert your current worksheet into a standard Excel file. Click on **Convert to Simple**, and the following message appears:



You can now work with this file using standard Excel which does not have the VisiXcel option installed, or other tools to build graphs, create regression formulas, etc.

CREATING A VISIMIX REPORT

Selecting **Report** at any stage of working on a current project in VisiMix invokes a submenu, which is identical to the **Calculate** submenu (Figure 1.1).

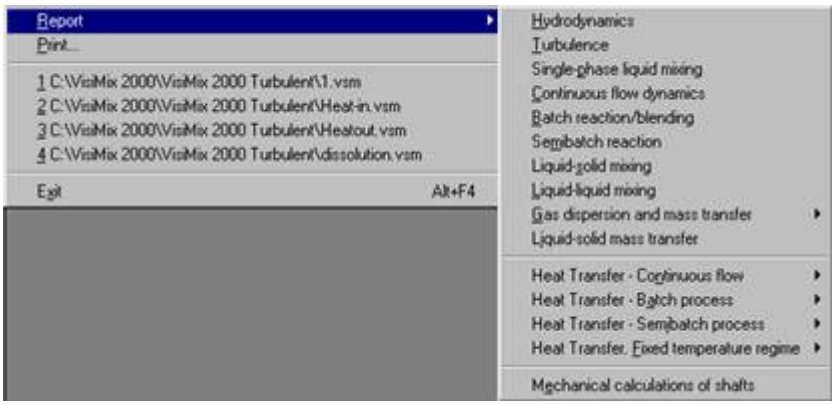


Figure 1.1.

Choose any item you are interested in, and supply additional data if requested by VisiMix. When the required initial data is entered, VisiMix asks you to enter a name for the report.

Enter the report name (Figure 1.2), and VisiMix will create a report containing relevant initial data and the results of the calculations.

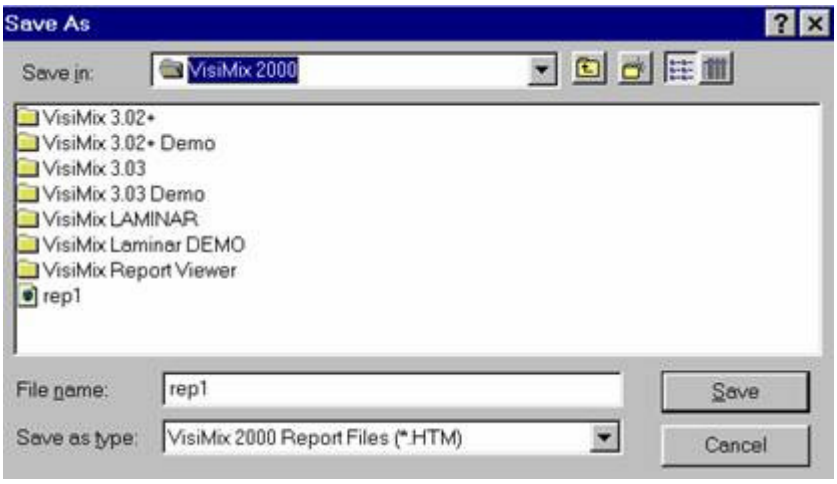


Figure 1.2.

On completing the report, VisiMix issues an appropriate message (Figure 1.3).

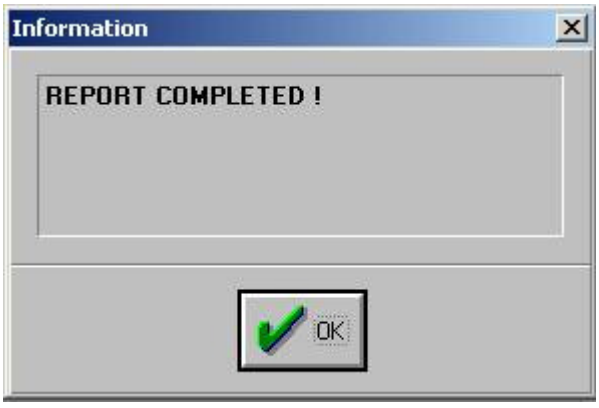


Figure 1.3.

You may create one or more reports for your project.
You may also modify initial data and create a new report under a new name.

UNITS CONVERSION TABLES

You can use the tables below to convert units in different VisiMix reports.

Conversion of US customary and commonly used units to SI units

Parameter	Value in US customary or commonly used units	Corresponding value in SI or technical metric units
Linear Sizes, Area, Volume		
Linear Size	X in	25.4*X mm
	X ft	0.3048*X m
Area	X sq. ft	0.0929*X sq.m
Volume	X gal US	3.785*X liter 0.003785*X cub. m
	X cub. ft	28.3*X liter 0.0283*X cub. m
Specific Area		
Specific Area	X sq. ft/cub. ft	3.2808*X sq. m/cub. m
Mass, Density		
Mass	X lbm	0.4536*X kg
	X lb. mol	0.4536*X kmol 453.6*X mol
Density	X lbm/cub. ft	16.02*X kg/cub. m
	X lbm/gal US	119.8*X kg/cub. m
Viscosity		
Dynamic Viscosity	X cP	0.001*X Pa*s
	X lbf*s/sq. ft	47.88*X Pa*s
Kinematic Viscosity	X cSt	1E-6*X sq.m/s
	X sq. ft/s	0.0929*X sq. m/s
Surface Tension		
Surface Tension	X lbf/ft	14.59*X N/m
	X dyn/cm	0.001*X N/m
Concentration		
Concentration (Mass/Volume)	X lbm/1000 gal US	0.1198*X kg/cub. m
	X lbm/cub. ft	16.02*X kg/cub. m
	X lb. mol/cub. ft	16.02*X kmol/cub. m
	X lb. mol/gal US	119.8*X kmol/cub. m
Flow Rate		
Flow Rate – Mass	X lbm/s	0.4536*X kg/s
	X lbm/min	0.007560*X kg/s
	X lbm/h	0.000126*X kg/s 0.4356*X kg/h
Flow Rate – Volume	X cub. ft/s	0.02832*X cub. m/s
	X cub. ft/min	0.000472*X cub. m/ s
		1.699*X cub.m/h
	X cub. ft/h	0.02832*X cub. m/h
	X gal US/h	0.003785*X cub. m/h
	X gal US/min	0.2271*X cub. m/h
		6.308E-5*X cub. m/s
Flow Rate – Molar	X lb. mol/s	453.6*X mol/s
		0.4536*X kmol/s

	X lb. mol/min	7.560*X mol/s
		0.007560*X kmol/s
Velocity		
Velocity	X ft/s	0.3048*X m/s
	X in/s	0.0254*X m/s
Force		
Force	X lbf	4.448*X N
Shear Stress		
Shear Stress	X lbf/sq. in	6895*X Pa
	X lbf/sq. ft	47.88*X Pa
Torque		
Torque	X lbf*ft	1.356*X N*m
	X lbf*in	0.113*X N*m
Energy, Power		
Energy	X lbf*ft	1.355*X J
	X B.t.u.	1.055*X kJ, 1055*X J
Power	X B.t.u./s	1055*X W
	X hp	746*X W, 0.746*X kW
Specific Power, Turbulent Dissipation Rate		
Specific Power (Turbulent Dissipation Rate)	X hp/cub. ft	26.33*X kW/cub. m
	X Btu/(cub. ft*s)	37.26*X kW/cub. m
	X lbf*ft/(lbm*s)	2.989*X W/kg
	X Btu/(lbm*s)	2326 X W/kg
Specific Reaction Rate		
Specific Reaction Rate	X cub. ft/(lb.mol*s)	0.0624*X l/(mol*s)
	X cub. ft(lb.mol*h)	1.734E-5*X l/(mol*s)
Pressure		
Pressure	X psi	0.068*X Atm
	X mm H_2O	9.806*X Pa
	X mm Hg	133.3*X Pa
	X lbf/sq. ft	47.88*X Pa
	X psi	6895*X Pa

Thermal Units

Specific Heat		
Specific Heat	X Btu/(lbm*°F)	4187*X J/(kg*K)
	X cal/(kg*°C)	4.184*X J/(kg*K)
Heat Conductivity		
Heat Conductivity	X Btu*ft/(h*sq.ft.* °F)	1.73*X W/(m*K)
	X Btu*in/(h*sq.ft.* °F)	0.1442*X W/(m*K)
	X cal*cm/(s*sq. cm*°C)	418.4*X W/(m*K)
	X kcal*m/(h*sq. m*°C)	1.162*X W/(m*K)
Temperature		
Temperature	X °F	5/9*(X - 32) °C
	X °F	5/9*(X + 459.4) K
Energy Of Activation		
Energy Of Activation	X Btu/(lb*mol)	2.326*X J/mol
Arrhenius Constant		
Arrhenius Constant	X cub. ft/(lb*mol*s)	0.06243*X cub. m/(Kmol*s)
	X cub. ft/(lb*mol*h)	$1.734*10^{-5}$*X cub. m/(Kmol*s)
Heat Transfer Rate		
Heat Transfer Rate	X Btu/(h*sq.ft)	3.155*X W/sq. m

Thermal Resistance		
Thermal Resistance	X °F *sq.ft*h/Btu	0.1761*X K*sq. m/W
Heat Transfer Coefficient		
HT Coefficient	X Btu/(s* sq. ft* °F)	$2.044*10^4$*X W/(sq. m*K)
	X Btu/(h* sq. ft* °F)	5.678*X W/(sq. m*K)
	X kcal/(h*sq. m*°C)	1.162*X W/(sq. m*K)

Conversion of SI units to US customary and commonly used units

Parameter	**Value in SI or Technical metric units**	**Corresponding value in US customary or commonly used units**
Linear Size, Area, Volume		
Linear Size	X mm	0.03937*X in
	X m	3.2808*X ft
Area	X sq.m	10.76*X sq. ft
Volume	X liter	0.03531*X cub. Ft 0.2642*X gal US
	X cub. m	35.31*X cub. Ft 264.2*X gal US
Specific Area		
Specific Area	X sq.m/cub. m	0.3048*X sq. ft/cub. Ft 0.0254*X sq. in/cub. in
Mass, Density		
Mass	X kg	2.205*X lbm
	X mol	0.002205*X lb. mol
	X kmol	2.205*X lb. mol
Density	X kg/cub. m	0.06243*X lbm/cub. Ft 0.008345*X lbm/gal US
Viscosity		
Dynamic Viscosity	X Pa*s	1000*X cP 0.02089*X lbf*s/sq. ft
	X cP	2.089E-5*X lbf*s/sq. ft
Kinematic Viscosity	X sq.m/s	1E6*X cSt 10.76*X sq. ft/s
	X cSt	1.076E-5*X sq. ft/s
Surface Tension		
Surface Tension	X N/m	1000*X dyn/cm 0.0685*X lbf/ft
Concentration		
Concentration (Mass/Volume)	X kg/cub. m	0.06243*X lbm/cub. Ft 8.345*X lbm/1000 gal US
	X kmol/cub. m (mol/liter)	0.06243*X lb. mol/cub. Ft 0.008345*X lb. mol/gal US
Flow Rate		
Flow Rate – Mass	X kg/s	2.205*X lbm/s 132.3*X lbm/min
Flow Rate - Volume	X cub. m/s	35.31*X cub. ft/s 2119*X cub. ft/min
	X cub. m/h	35.31*X cub. ft/h 0.5886*X cub. ft/min 4.403*X gal US/min
Flow Rate - Molar	X mol/s	0.002205*X lb. mol/s
	X kmol/s	2.205*X lb. mol/s

Velocity		
Velocity	X m/s	3.2808*X ft/s
		39.37*X in/s
Force		
Force	X N	0.2248*X lbf
Shear Stress		
Shear Stress	X Pa	0.000145*X lbf/sq. in
		0.02089*X lbf/sq. ft
Torque		
Torque	X N*m	0.738*X lbf*ft
		8.851*X lbf*in
Energy, Power		
Energy	X kJ	0.9478*X Btu
	X J	0.738*X lbf*ft
Power	X W	0.0009478*X Btu/s
		0.00134*X hp
	X kW	1.34*X hp
		0.9478*X Btu/s
Specific Power, Turbulent Dissipation Rate		
Specific Power (Turbulent Dissipation Rate)	X kW/cub. m	0.03797*X hp/cub. ft
		0.0268*X Btu/(cub. ft*s)
	X W/kg	0.3346*X lbf.ft/(lbm*s)
		0.0004299*X Btu/(lbm*s)
Specific Reaction Rate		
Specific Reaction Rate	X l/(mol*s)	16.02*X cub. ft/(lb.mol*s)
		57666*X cub. ft/(lb.mol*h)
Pressure		
Pressure	X Pa	$0.9869*10^{-6}$*X atm
	X atm	14.696* X lbf/sq. in (psi)
	X Pa	0.102*X mm H_2O
	X Pa	0.0075*X mm Hg
	X atm	1.01325*X bar
	X Pa	10*X dyn/sq. cm

Thermal Units

Specific Heat		
Specific Heat	X J/(kg*K)	0.0002388*X Btu/(lbm*°F)
	X J/(kg*K)	0.239*X cal/(kg*°C)
Heat Conductivity		
Heat Conductivity	X W/(m*K)	0.578*X Btu*ft/(h*sq.ft.* °F)
	X W/(m*K)	6.933*X Btu*in/(h*sq.ft.* °F)
	X W/(m*K)	0.00239*X cal*cm/(s*sq. cm*°C)
	X W/(m*K)	0.8604*X kcal*m/(h*sq. m*°C)
Temperature		
Temperature	X °C	9/5*X + 32 °F
	X K	9/5*X - 459.4 °F
Energy Of Activation		
Energy Of Activation	X J/mol	0.4298*X Btu/(lb*mol)
Arrhenius Constant		
Arrhenius Constant	X cub. m/(Kmol*s)	0.01602*X cub. ft/(lb*mol*s)
		$57.67*10^3$*X cub. ft/(lb*mol*h)
Heat Transfer Rate		
Heat Transfer Rate	X W/sq.m	0.317*X Btu/(h*sq.ft)

Thermal Resistance		
Thermal Resistance	X K*sq.m/W	5.678*X °F *sq.ft*h/Btu
Heat Transfer Coefficient		
HT Coefficient	X W/(sq. m*K)	$4.8924*10^{-5}$*X Btu/(s* sq. ft* °F)
	X W/(sq. m*K)	0.1761*X Btu/(h* sq. ft* °F)
	X W/(sq. m*K)	0.8606*X kcal/(h*sq. m*°C)