

## Introduction.

This program VisiXcel DB provides VisiMix users with a new applications – development and running a database of reactors and tanks with mixing devices.

The main features and advantages of the program:

- systematization and uniform presentation of technical information of tanks and reactors with different mixing devices
- easy accessibility of main technical data of the reactors
- direct connection with VisiMix programs and easy access to VisiMix calculations.
- systematization and easy access to previous VisiMix inputs (projects) and results of previous modeling .

Function of the program:

- including of mixing tanks and reactors in MED (Mixing Equipment Database);
- development of a systematic list of VisiMix projects (VPL – VisiMix Projects List) with connection to the corresponding tanks and reactors;
- enabling direct access to VisiMix modeling of the tanks and reactors presented in MED and in VPL;
- enabling easy access to results of different sets of VisiMix modeling.

The tool allows for a number of different working scenario. This Guide includes description of a few the most important ones:

- **Starting of the VisiXcel and entering a new reactor.**
- **Application of VisiMix program for a reactor included in the MED.**
- **Adding a new project to the Project List.**

## 1. Starting of VisiXcel and entering a new reactor.

Application of the VisiXcel is started with entering of mixing tanks and reactors using VisiMix program, for example – the program VisiMix Turbulent.

The first step - opening the VisiMix program and building the VisiMix Report.

- 1.1. Start the program VisiMix Turbulent. Select a VisiMix project, create and save VisiMix report (Figures 1.1-1.3).

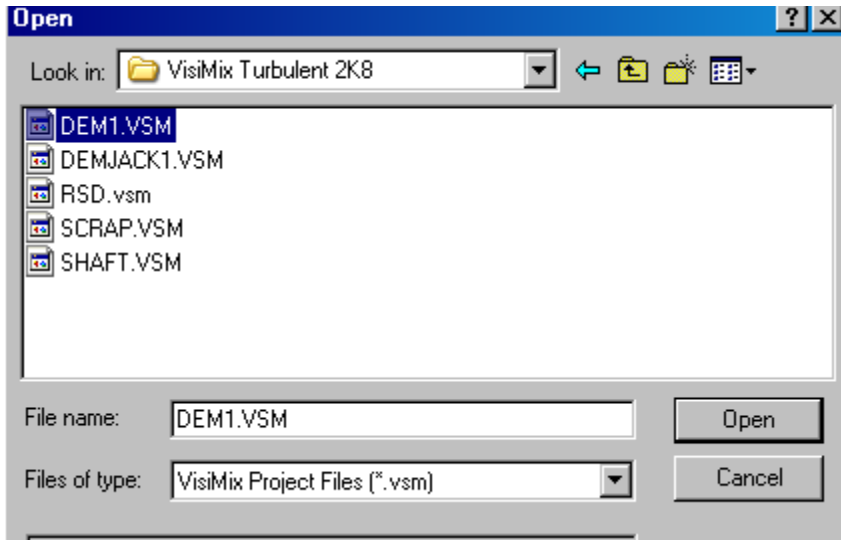


Figure 1.1.

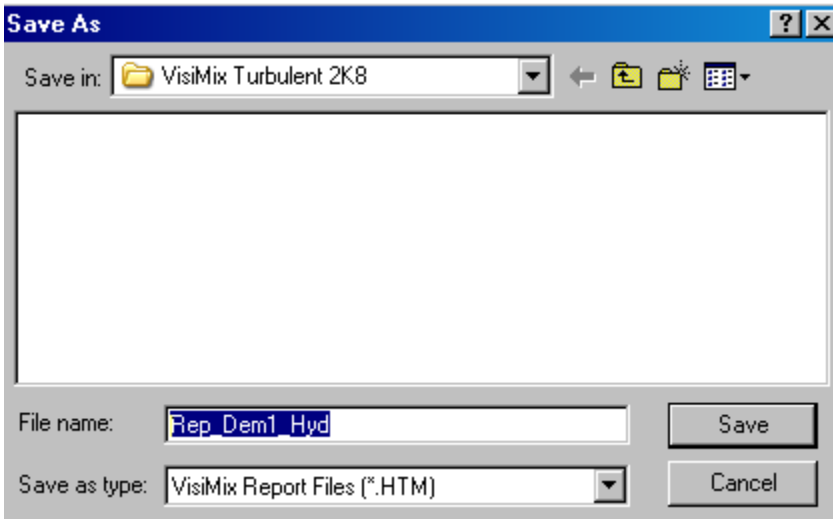


Figure 1.2.

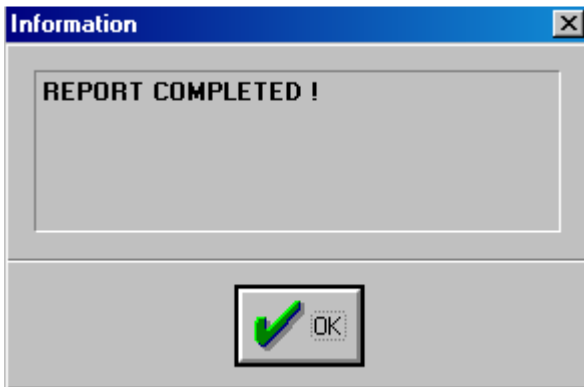


Figure 1.3.

- 1.2. Open **Excel**. Select **VisiXcel** in the main menu and press **Build Report** (Figure 1.4). Find and open the previously created report Rep\_Dem1\_Hyd.htm (Figures 1.5, 1.6).

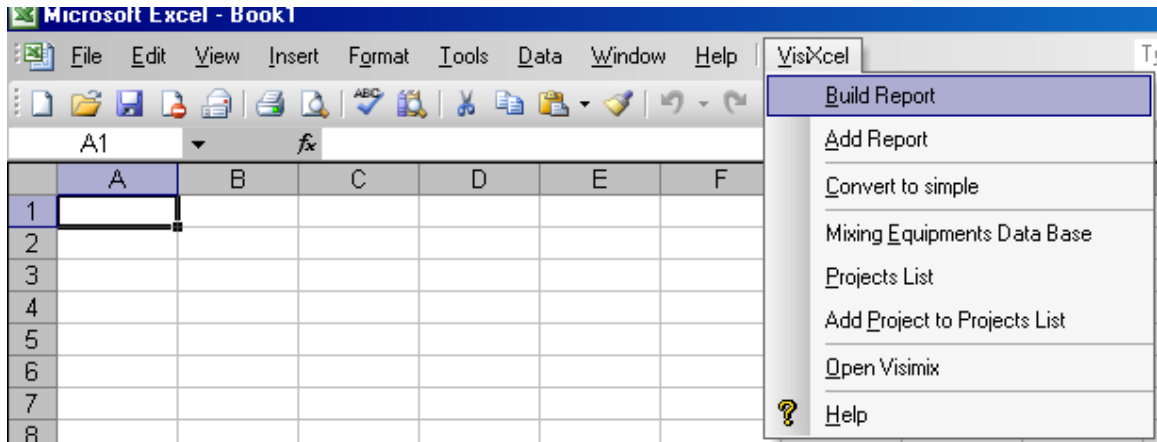


Figure 1.4.

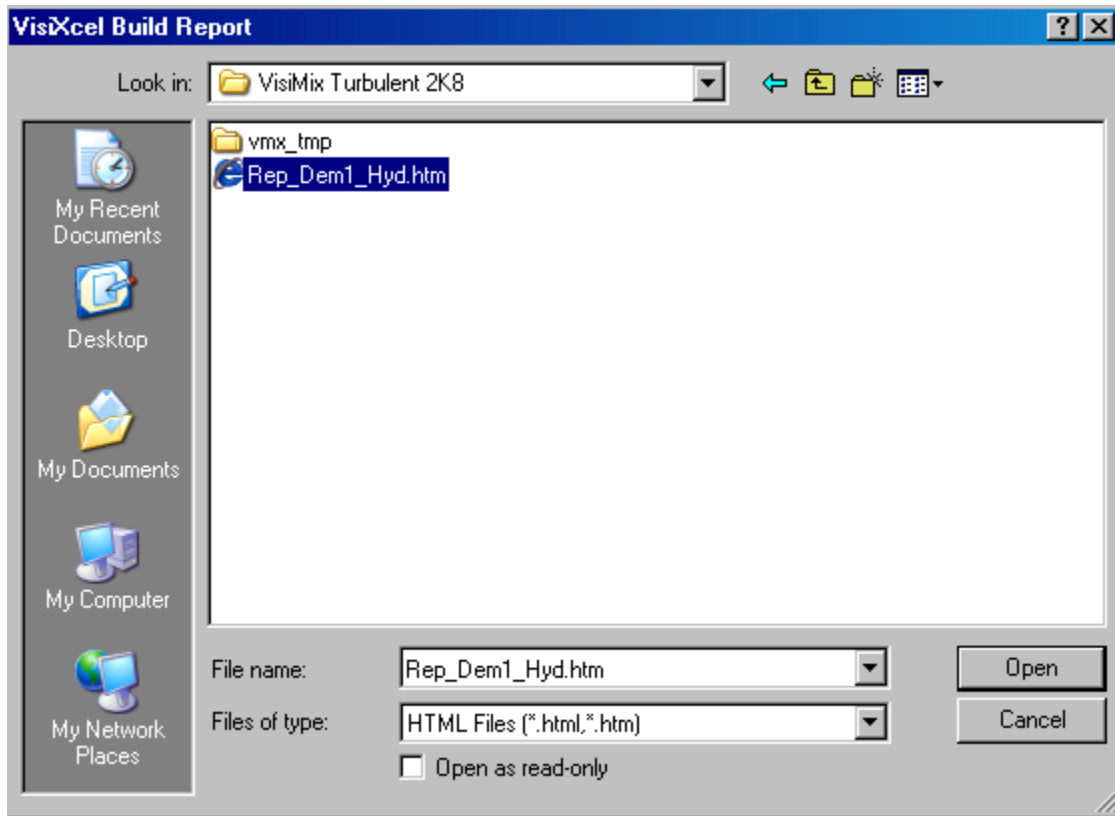


Figure 1.5.

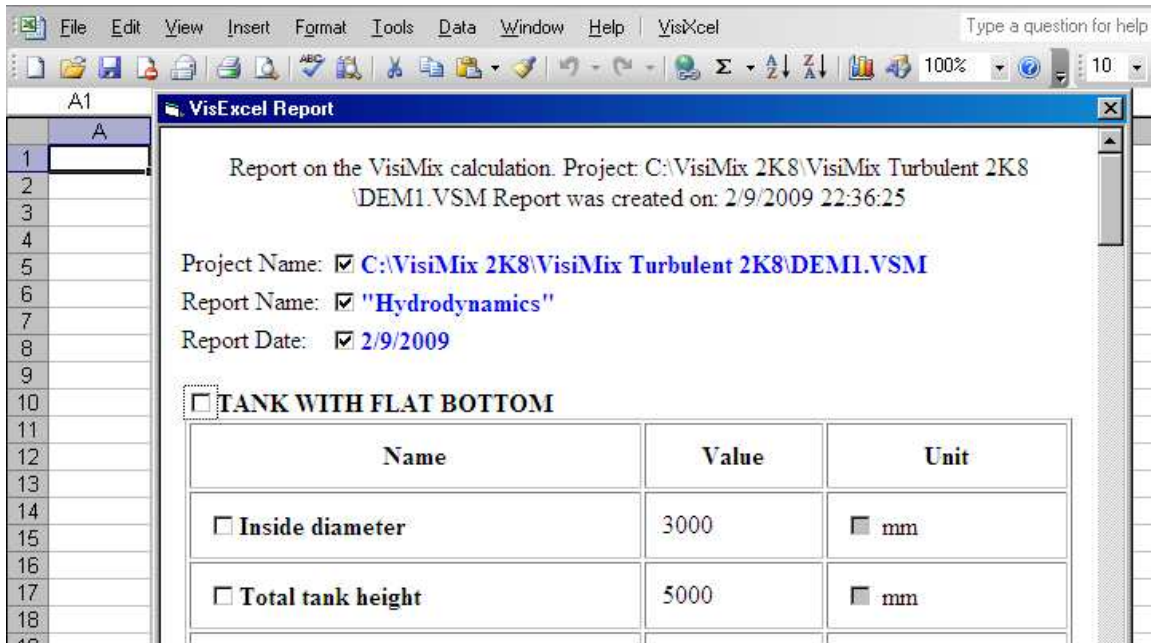


Figure 1.6.

- 1.3. Click **Submit Report** button in the lower bar of the Report window (Figure 1.6). Names of the **Report** and **Project** will be transferred to the **Excel** file (Figure 1.7).

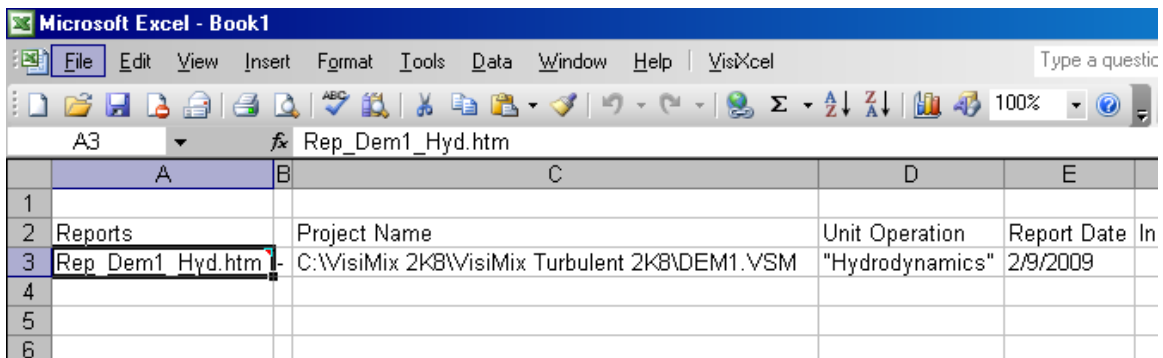


Figure 1.7.

- 1.4. Click on the field of created project line (Figure 1.7). Open VisiXcel menu and select **Add project to Projects list** (Figure 1.8).

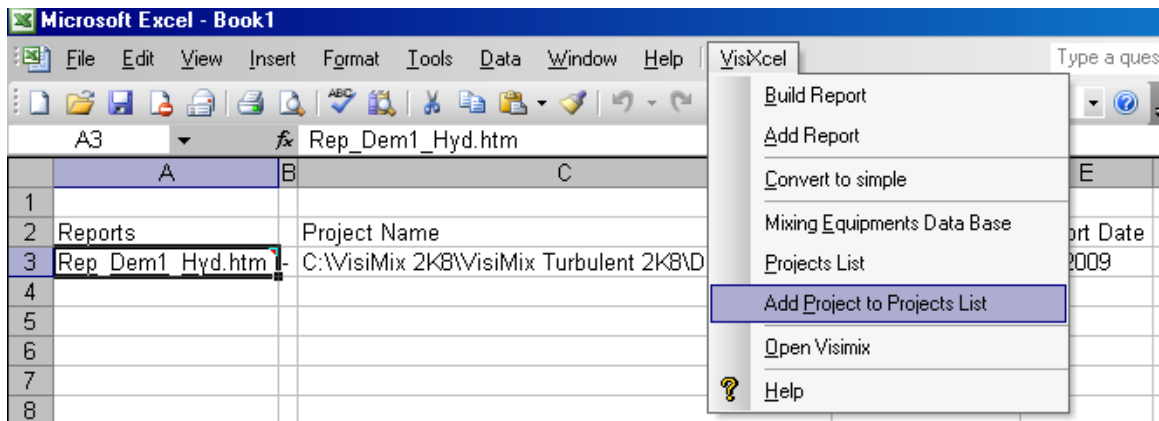


Figure 1.8.

- 1.5. Check data of the project in the arriving form (Figure 1.9). If the data are not correct select **Cancel** and repeat steps 1.1-1.4.
- 1.6. Enter remarks to the project (if necessary) and confirm entry of this project into **Projects list** with **Save (Figure 1.9)**. A line corresponding to the Project arrives in the **Project list** (Figure 1.10).

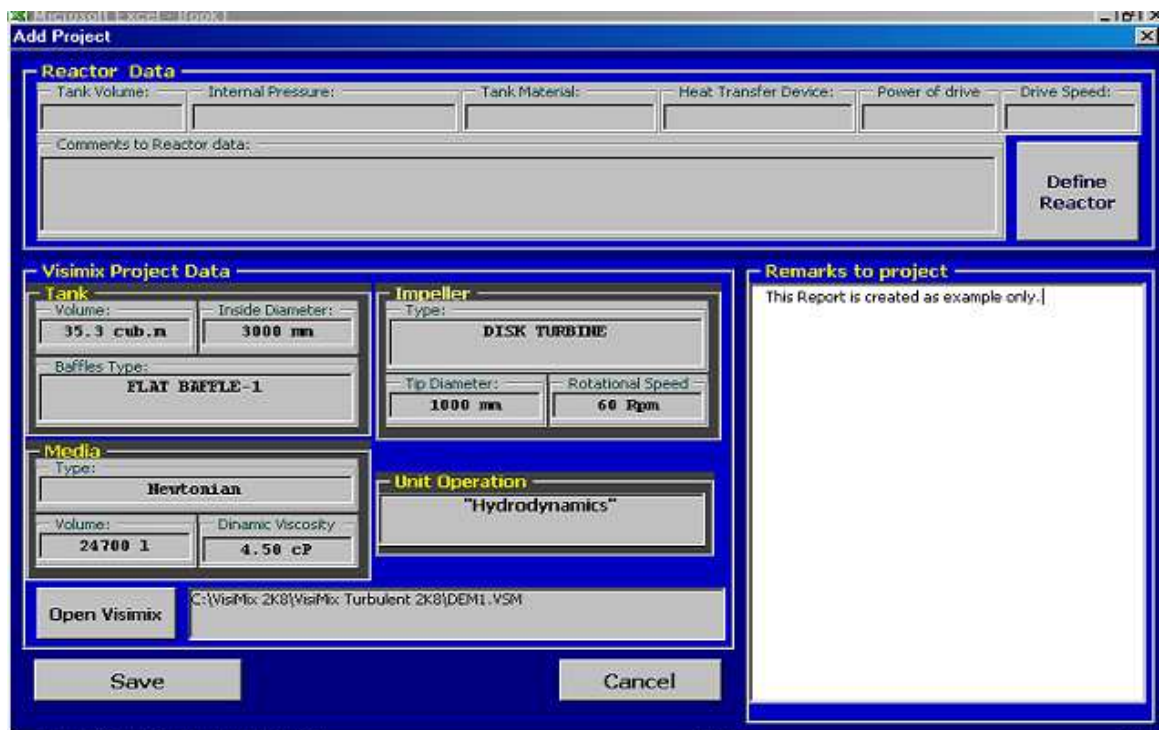


Figure 1.9.

	C	D	E	F	G	H	I	J
1	<b>Projects List</b>							
	Close	Reactor Name	Tank Volume	Volume of Media	Subject of modeling( Unit Operation)	Date Report Creation	Report Name	Project Path
	Edit/View							
2	Delete							
3		35.3 cub.m	24700 l	"Hydrodynamic	2/9/2009 22:3	Rep_Dem1_Hy	C:\VisiMix 2K8 DI	
4								

Figure 1.10

1.7. In order to enter the reactor into Database, click on the field of created project line (Figure 1.10) and select **Edit/View** in the left part of the table head. In the arriving form (Figure 1.11) select **Define Reactor** button. A table of **Mixing Equipment Database** (Figure 1.12) will arrive. On this stage the table is empty. Select **Add** in the lower bar. Enter main characteristics of the reactor in arriving form (Figure 1.13) and press **Save** (see Note). The Database table containing the reactor will arrive in the screen (Figure 1.14).

**Note.** For including the reactor into Database, it is not necessary to fill all boxes of this table.

Figure 1.11.

Reactors												
1	Reactor	Tank Volume		Internal Pressure		Tank	Heat Transfer	Drive Power		Drive		
2	Name	Value	Unit	Type	Value	Unit	Material	Device	Value	Unit	Speed	Creat

Select Edit Add Delete Exit Projects

Figure 1.12.

**Edit/Enter Reactor Data**

Reactor Name: R\_Dem1      Tank Volume: 35.5      cub.m

Comments of Reactor Data:  
This reactor is included as an example only

Pressure Type: Atmospheric

Tank Material: Stainless steel      Heat Transfer Device: Absent

Power of Drive:      Drive:  Fix       Variable       Not Defined

Heat Transfer Device:  Absent       Conventional jacket       Half-pipe coil jacket

Save      Cancel

Figure 1.13.

Reactors												
1	Reactor	Tank Volume		Internal Pressure			Tank	Heat Transfer	Drive Power		Drive	
2	Name	Value	Unit	Type	Value	Unit	Material	Device	Value	Unit	Speed	Creat
3	R_Dem1	35.5	c.u.b.m	Atmospheric			Stainless	Absent			Fixed	#####

Buttons: Select, Edit, Add, Delete, Exit, Projects

Figure 1.14.

1.8. In order to fix connection between the project Dem1.vsm and the reactor R\_Dem1, click on the reactor line (Figure 1.14) and press **Select** button in the lower part of the window. The arriving table (Figure 1.15) contains data of the reactor R\_Dem1.vsm and the project Dem1.vsm. Confirm correspondence of the data with **Save**. As a result, the reactor name will arrive in the project line created earlier in the **Project List** (Figure 1.16).

## 2. Application of VisiMix program for a reactor included in the MED.

2.1. Open Excel. Select **VisiXcel**. in **Excel** menu and select **Mixing Equipment Database** (Figure 2.1)

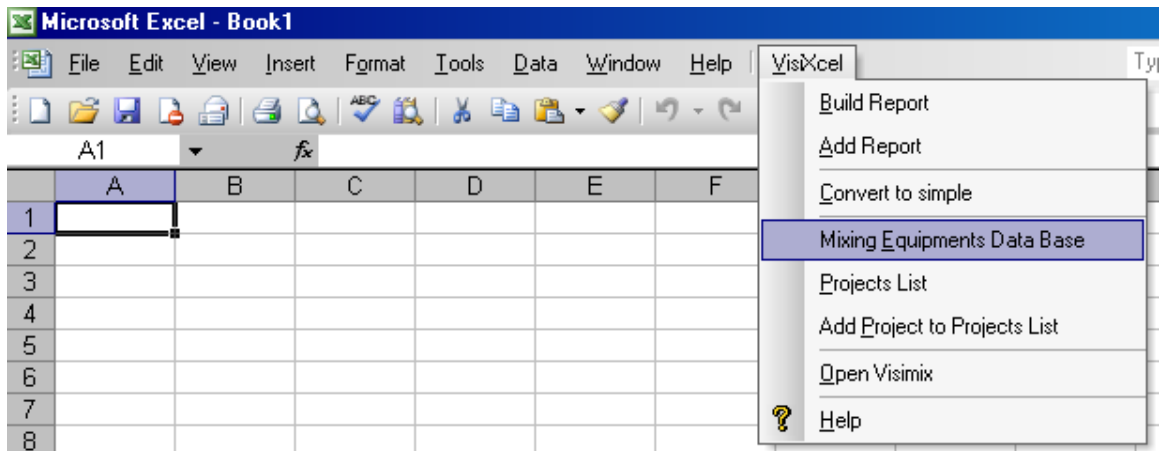


Figure 2.1.



2.2. Click on the selected reactor line in the arriving table (Figure 2.2) and press **Projects** button in the lower part of the window. With this action the program opens the **Projects List** and provides list of all projects and reports related to the selected reactor (Figure 2.3).

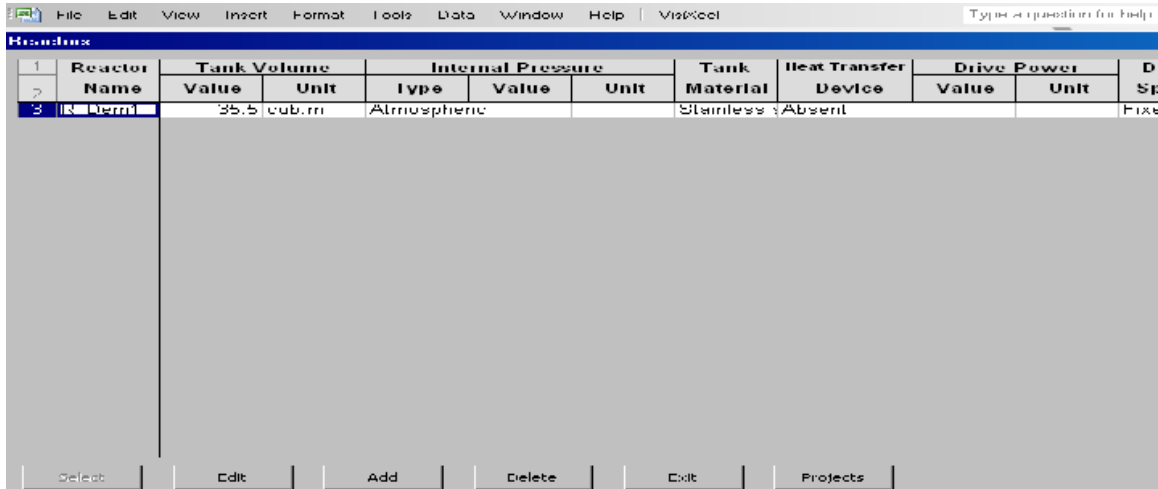


Figure 2.2

2.3. Mark selected project in this list (Figure 2.3) and click **Open VisiMix in VisiXcel** menu. The program will open VisiMix and a path to the selected project (Figure 2.4). In order to open the project, click **Open** button in this dialog box.

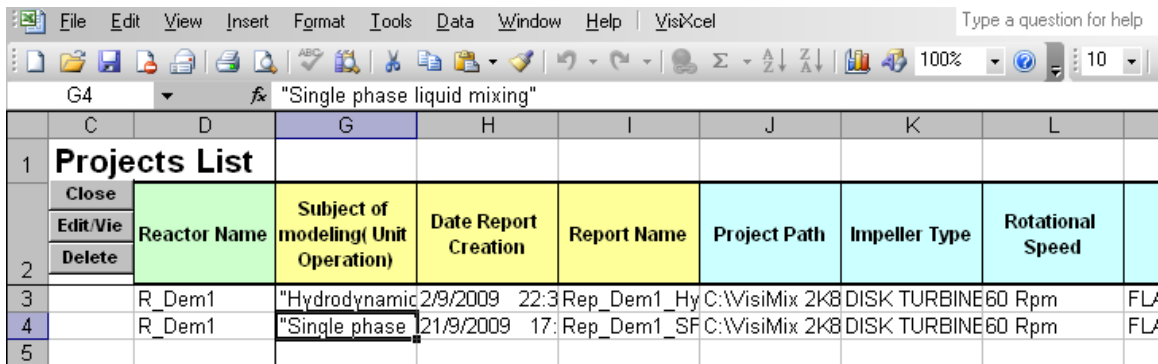


Figure 2.3

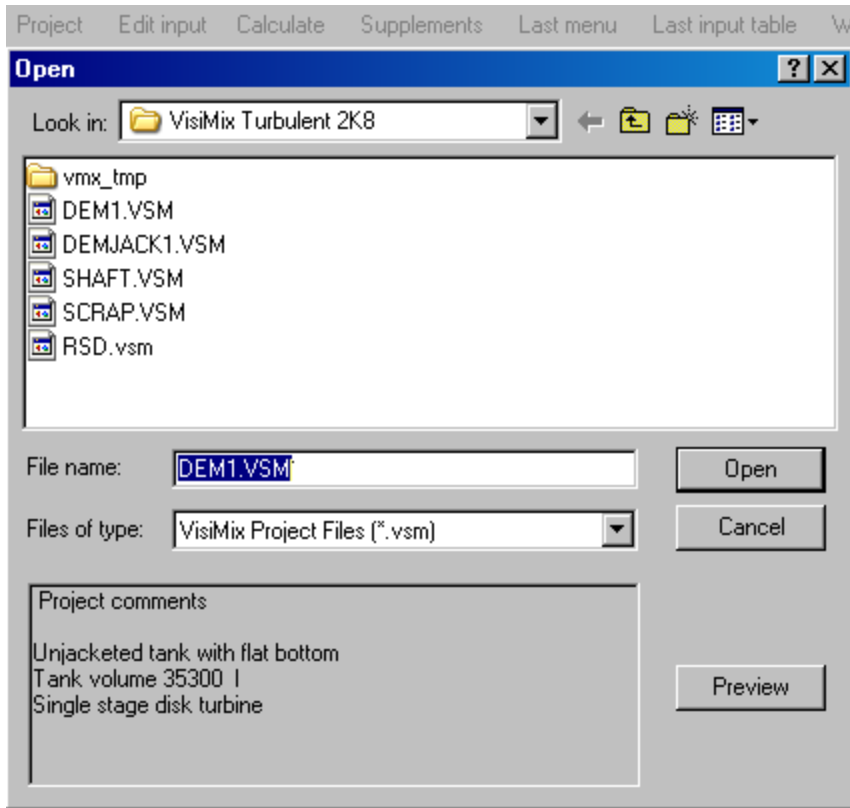


Figure 2.4.

### 3. Adding a new project to the Project List.

This option is related to the possibility to have a few projects with different initial data (for example – different media or process) for the same reactor.

- 3.1. Create a new project and perform VisiMix calculations as usual. Create and save the corresponding report, for example – using **Turbulent** option (Figures 3.1, 3.2).

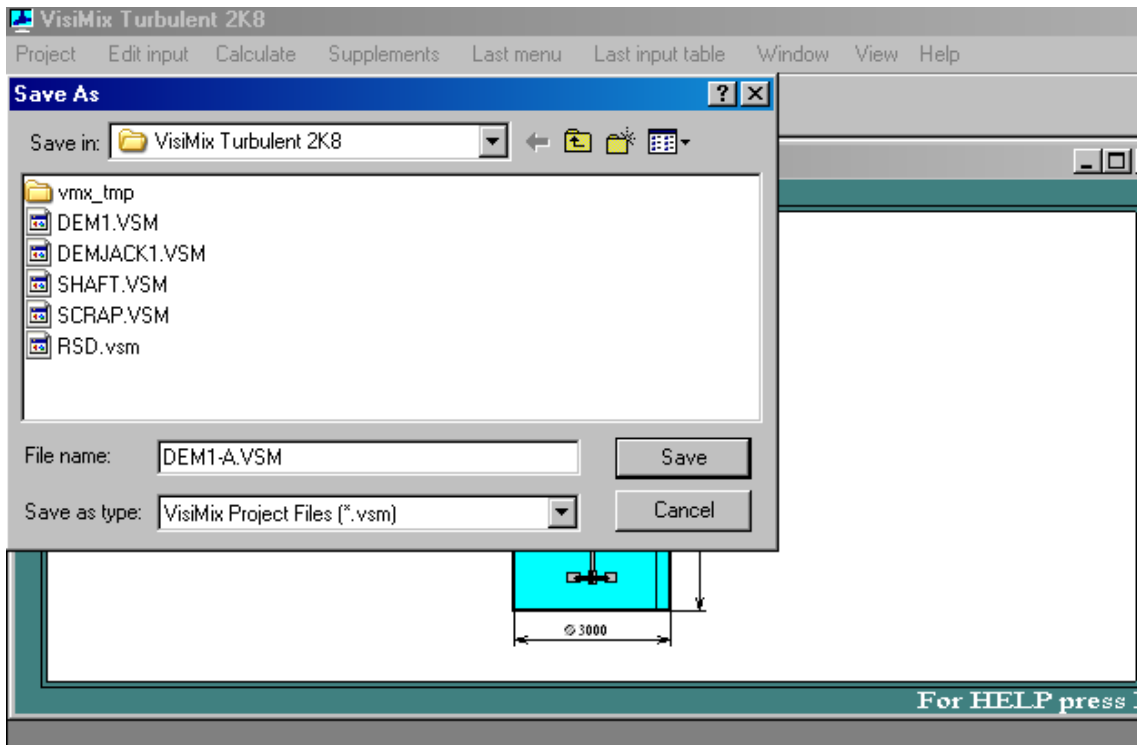


Figure 3.1.

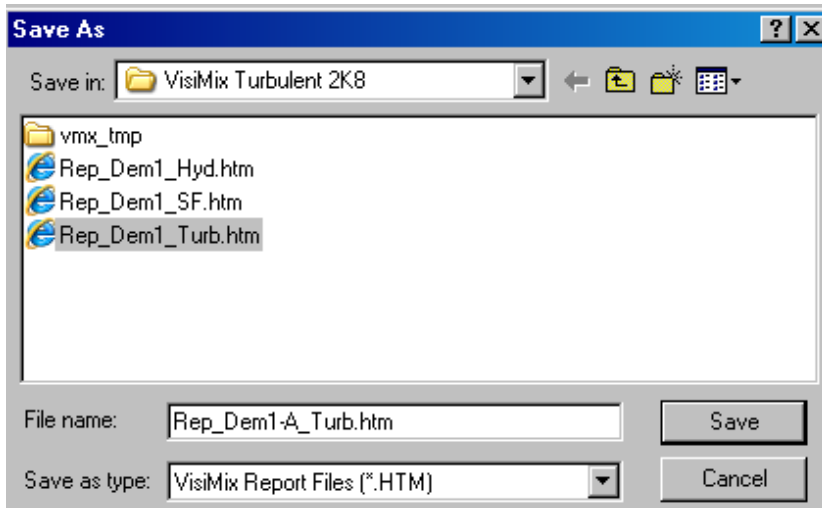


Figure 3.2.

3.2. Select **Build Report** in **VisiXcel** menu (see Figure 1.3) and create intermediate VisiXcel file (Figure 3.3) corresponding to this project (see par. 1.2 and 1.3 above).

	A	B	C	D	E
1					
2	Reports		Project Name	Unit Operation	Report Date
3	Rep_Dem1-A_Turb.htm		C:\VisiMix 2K8\VisiMix Turbulent 2K8\DEM1-A.VSM	"Turbulence"	21/9/2009
4					
5					

Figure 3.3.

3.3. Move marker to the created project line (as in Figure 1.7) and include the new project in the Project List (Figure 3.4, operations corresponding to par. 1.4-1.6).

	C	D	E	F	G	H	I	J	
1	<b>Projects List</b>								
	Close								
	Edit/View	Reactor Name	Tank Volume	Volume of Media	Subject of modeling( Unit Operation)	Date Report Creation	Report Name	Project Path	In
2	Delete								
3			0.603 l	0.250 l	"Hydrodynamic	19/4/2009 16:	ddd.htm	C:\2008\Rotor-RA	
4			35.3 cub.m	24700 l	"Hydrodynamic	2/9/2009 22:3	Rep_Dem1_Hy	C:\VisiMix 2K8 DI	
5			35.3 cub.m	24700 l	"Hydrodynamic	2/9/2009 22:3	Rep_Dem1_Hy	C:\VisiMix 2K8 DI	
6			35300 l	24700 l	"Turbulence"	21/9/2009 18:	Rep_Dem1-A	C:\VisiMix 2K8 DI	
7		R_Dem1	35.3 cub.m	24700 l	"Hydrodynamic	2/9/2009 22:3	Rep_Dem1_Hy	C:\VisiMix 2K8 DI	
8		R_Dem1	35300 l	24700 l	"Single phase	12/9/2009 17:	Rep_Dem1_SF	C:\VisiMix 2K8 DI	
9									
10									
11									

Figure 3.4.

3.4. In order to fix connection of the new project to the reactor selected earlier, select **Edit** and press **Define Reactor** button in the arriving form (Figure 3.5).

Figure 3.5.

3.5. Click on the reactor name in the Database table (Figure 2.2) and press **Select** button. Check the project data in the arriving form (Figure 3.6) and confirm appropriation of the project to the reactor with **Save**.

**Reactor: R\_Dem1**

Tank Volume: 35300 l Internal Pressure: Atmospheric Tank Material: Stainless Steel Heat Transfer Device: None Power of drive: Drive Speed: Fixed

Comments to Reactor Jets: This reactor is included as an example only

Define Reactor

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**VisiMix Project Data**

**Tank**  
 Volume: 35300 l Inside Diameter: 3000 mm  
 Ball Size Type: F.2T ROTOR-1

**Impeller**  
 Type: DISK TURBINE  
 Tip Diameter: 1000 mm Rotational Speed: 60 Rpm

**Media**  
 Type: Newtonian  
 Volume: 24700 l Dynamic Viscosity: 0.00150 Pa\*s

**Unit Operation**  
 "Turbulence"

Open VisiMix: C:\VisiMix 2K8\VisiMix\_Turbulent 2K8\DEM1-A VSM

Save Cancel

**Remarks to project**

Figure 3.6.

Name of the reactor arrives in the Project List, in the line that corresponds to the last VisiMix project (Figure 3.7).

	C	D	E	F	G	H	I	J	
1	<b>Projects List</b>								
	Close								
	Edit/View	Reactor Name	Tank Volume	Volume of Media	Subject of modeling( Unit Operation)	Date Report Creation	Report Name	Project Path	
2	Delete								
3			0.603 l	0.250 l	"Hydrodynamic	19/4/2009 16:	ddd.htm	C:\2008\Rotor-1R,	
4			35.3 cub.m	24700 l	"Hydrodynamic	2/9/2009 22:3	Rep_Dem1_Hy	C:\VisiMix 2K8 DI	
5			35.3 cub.m	24700 l	"Hydrodynamic	2/9/2009 22:3	Rep_Dem1_Hy	C:\VisiMix 2K8 DI	
6		R_Dem1	35.3 cub.m	24700 l	"Hydrodynamic	2/9/2009 22:3	Rep_Dem1_Hy	C:\VisiMix 2K8 DI	
7		R_Dem1	35300 l	24700 l	"Single phase	12/1/9/2009 17:	Rep_Dem1_SF	C:\VisiMix 2K8 DI	
8		R_Dem1	35300 l	24700 l	"Turbulence"	21/9/2009 18:	Rep_Dem1-A	C:\VisiMix 2K8 DI	
9									

Figure 3.7.