Volume Conversions in DLL file

1 Introduction:

The conversion DLL file of unit Volume is written in C/C++ programming language style, and do not require any extra code in using this DLL file. This DLL file includes 2 functions to handle the Volume conversions as follow:

```
double LP_UnitConversionsVolume_GetLeftValue (char* LeftUnit, char* RightUnit, double RightValue)  ;
double LP_UnitConversionsVolume_GetRightValue(char* LeftUnit, char* RightUnit, double LeftValue )  ;
```

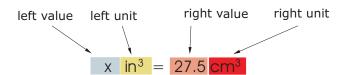In Visual Basis, you can identify these functions with the code:

```
Declare Function LP_UnitConversionsVolume_GetLeftValue Lib "LP_UnitConversionsVolume.dll" _
(ByVal LeftUnit As String, ByVal RightUnit As String, ByVal RightValue As Double) As Double


Declare Function LP_UnitConversionsVolume_GetRightValue Lib "LP_UnitConversionsVolume.dll" _
(ByVal LeftUnit As String, ByVal RightUnit As String, ByVal RightValue As Double) As Double
```

2 Problems in Volume conversion

The two functions in DLL file are used to handle all Volume conversions in two problems.

<u>Problem 1</u>   The unknown value is on the **left hand side** of equation

This problem in conversion is described in the figure:

The value x is obtained by either one of two methods:

- Method A : The code is :

    ```
    Dim x As Double
    x = LP_UnitConversionsVolume_GetLeftValue("CubicInch", "CubicCentimeter", 27.5)
    ```
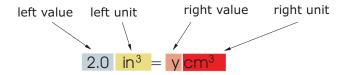
- Method B : The code is :

```
Dim LeftUnit, RightUnit As String
LeftUnit = "CubicInch"
RightUnit = "CubicCentimeter"

Dim RightValue As Double
RightValue = 27.5

Dim x As Double
x = LP_UnitConversionsVolume_GetLeftValue(LeftUnit, RightUnit, RightValue)
```

Problem 2   The unknown value is on the **right hand side** of equation

This problem in conversions is described in the figure:

The value y is obtained by either one of two methods:

- Method A : The code is :

```
Dim y As Double
y = LP_UnitConversionsVolume_GetRightValue("CubicInch", "CubicCentimeter", 2.0)
```

- Method B : The code is :

```
Dim LeftUnit, RightUnit As String
LeftUnit = "CubicInch"
RightUnit = "CubicCentimeter"

Dim LeftValue As Double
LeftValue = 2.0

Dim y As Double
y = LP_UnitConversionsVolume_GetRightValue(LeftUnit, RightUnit, LeftValue)
```

3   Unit names in Volume conversions

You can choose the unit name (case sensitive) in the following table for parameters, LeftUnit and/or RightUnit

CubicMillimeter	Teaspoon
CubicCentimeter	AcreFoot
Milliliter	AcreInch
Liter	BushelUS
CubicMeter	BushelUK
CubicKilometer	Cord
CubicInch	GillUS
CubicFoot	GillUK
CubicYard	PeckUS
CubicMile	PeckUK
GallonUS	PintUSDry
GallonUK	PintUSLiq
BarrelUSPetroleum	QuartUSDry
Cup	QuartUSLiq
OunceFluidUS	Stere
OunceFluidUK	Pipe
Tablespoon	BarrelUK

When your unit name is not in this table, the returns of functions are -1 and the error message will issue as shown in the following figures:

or

4 Tip

1. The parameters in two functions have the same order of unit name (LeftUnit is first and RightUnit is second) and the last parameter is the known value.

2. Use function LP_UnitConversionsVolume_GetLeftValue(..) if your **unknown** value is on the **left hand side** of the equation.

3. Use function LP_UnitConversionsVolume_GetRightValue(..) if your **unknown** value is on the **right hand side** of the equation.