EUSES

the European Union System
for the Evaluation of Substances

EUSES 2.1.1 User Manual

February 2008

TSA Group Delft bv

CONTENTS

1 INTRODUCTION

About EUSES 2.1.1

The PC program EUSES is designed to be a decision-support system for the evaluation of the risks of substances to man and the environment. The system is fully described in the EUSES documentation and is based on the EU Technical Guidance Documents (TGDs; EC-TGD, 2003) for risk assessment of new and existing substances and biocides.

The manual

This manual will guide you through the EUSES computer program. It is intended for persons who already know how to use Windows programs. The reader should be familiar with Windows terminology like clicking a button, moving the mouse cursor and double-clicking.

Users, who would also like to know the basic aspects of the program, usage of the most important keys and the menu structure should read chapter 2. Please note that more specific information is available through the EUSES help system, discussed in paragraph 2.10.

Users who receive an error message should consult chapter 3. This chapter provides an overview of the error messages including possible solutions.

Installation

Users who are interested in the hardware requirements and the installation procedure should read chapter 4. Paragraph 4.2 contains the installation instructions.

Important

The program requires that you make choices on several levels. Some of these choices may not be obvious from the information given by the program and/or the help screens. In these situations you should consult the reports mentioned in the Reference chapter.

Figures

The figures in this manual are used for illustration purposes only. The values should not be used for any kind of risk assessment.

Trademarks

All product names referenced herein are trademarks or registered trademarks of their respective companies.

2 QUICK REFERENCE

2.1 CONVENTIONS

COMMAND   Uppercase represents commands you must type.
Menu option   Bold represents menu options.
<>   Text between <> indicates a key on your keyboard. For example <Esc> means that you have to press the escape key on your keyboard.
[BUTTON]   Text between [] indicates a selection you make with this button.

2.2 DEFINITIONS

This paragraph contains the program definitions of EUSES. Model definitions for NOECs, LOAELs, etc. are presented in Appendix I of the background report (EC-EUSES, 2003). You can also consult the definitions page of the EUSES help menu (**Help/Definitions**).

Assessment type   An assessment type sets the scope of the risk assessment at the start of the program (EC-EUSES, 2003). The possible types are:

    Assessment of biocides on local scale only

 I Environmental assessment
  Ia Local scale
  Ib Regional scale
 II Predators exposed via the environment
 III Man exposed via the environment
  IIIa Local scale
  IIIb Regional scale
 IV Man exposed via consumer products
 V Man exposed at the workplace (EASE)

Biocides   non-agricultural pesticides to control the severity and incidence of pests or diseases.

Block   Blocks consist of a single component or a large number of components with similar fate and distribution properties. This concept is applied in the Hydrocarbon Block Method.

CIF   Chemical Interchange Format. EUSES and IUCLID to interchange data use this format.

Component   Components of a substance are chemically pure entities, in principle characterised by one structural formula. In EUSES, components are relevant entities in the Hydrocarbon Block Method only (see chapter III.8 (EC-EUSES, 2003)).

ConsExpo   Program containing a collection of dedicated models for the

assessment of consumer exposure to new and existing substances and biocides in consumer products; also containing the TGD-scenarios. Is linked to EUSES 2.0 in the consumer exposure section.

Default   The term default is used for:
- Singular: A default value for a parameter
- Plural: The set of non-substance related data and data describing the environment

Distribution section   Section containing all data related to the distribution model of EUSES (including Sewage Treatment Plant data).

EASE   Estimation and Assessment of Substance Exposure. This general model is described in Section 2.2 of the TGD. EASE was specifically developed by the UK Health and Safety Executive for the purpose of modelling inhalation and dermal workplace exposure across a wide range of circumstances. EASE is an analogue model; i.e. it is based on measured data that are assigned to specific scenarios.

ECB   European Chemicals Bureau (Ispra, Italy).

Effects section   Section containing all effects data.

EUSES   European Union System for Evaluation of Substances.

Exposure section   Section containing all exposure data for humans and predators

HBM   See Hydrocarbon Block Method

Hydrocarbon Block Method   Method for the environmental risk assessment of mixtures of chemicals, especially petroleum substances.

Intermediate results   Parameters that get a value as the result of the calculation of a EUSES submodule. If they can be used in further EUSES calculations, they are open (i.e. editable), else they are closed (i.e. non-editable).

Mode   A method of interaction. EUSES supports a direct mode with minimal input, an interactive mode that shows all intermediate results and allows you to change them and an outline mode that operates directly on the outline, giving you full control.

Node   A part of the outline that cannot be expanded further. Nodes represent values of parameters.

Outline   The part of the user interface that contains all data for the current study in a hierarchical manner. The structure of the outline will reflect the selected assessment types and the use of the HBM.

Parameter   Parameters represent model variables, either input, defaults,

intermediate results or output. Parameters whose values can not be changed are called closed parameters. Parameters can be undefined (no default or calculated value), defaulted (default value assigned), set (user input) or calculated (the result of a calculation) or imported.

Release estimation section Usages (i.e. tonnages, use patterns, industrial, use and main categories, life cycle steps) are specified in this section. If you do not use the Hydrocarbon Block Method, you can specify more than one usage. The section contains input data, intermediate results and estimated releases.

Risk characterisation section Section containing the risk characterisation ratios (RCR): PEC/PNEC, human assessment factors, MOS, RMOS, MOE, RMOE, lifetime cancer risk (CLR), AOEL, AOEL/exposure.

RIVM National Institute of Public Health and the Environment (Bilthoven, Netherlands).

Section A part of the outline that can be expanded. It contains other sections and/or nodes.

SNIF Structured Notification Interchange Format.

Substance A substance (in EUSES) is the set of physico-chemical, effects, exposure and usage data that can be stored to the database as a separate entity.

Study A study is the set of all data of the current assessment.

Study identification Identification of study and author. This makes it easier for you to retrieve studies from the EUSES database.

TGD Technical Guidance Document (EC-TGD, 2003)

Use pattern All data related to a single usage of a chemical.

2.3 ENTERING AND LEAVING THE PROGRAM

Entering the program

To enter the program one usually executes the following steps:
- Press the Start button.
- Select Programs.
- Select EUSES menu.
- Select EUSES.

or take similar steps for your system if there is no "Programs" item present for EUSES.

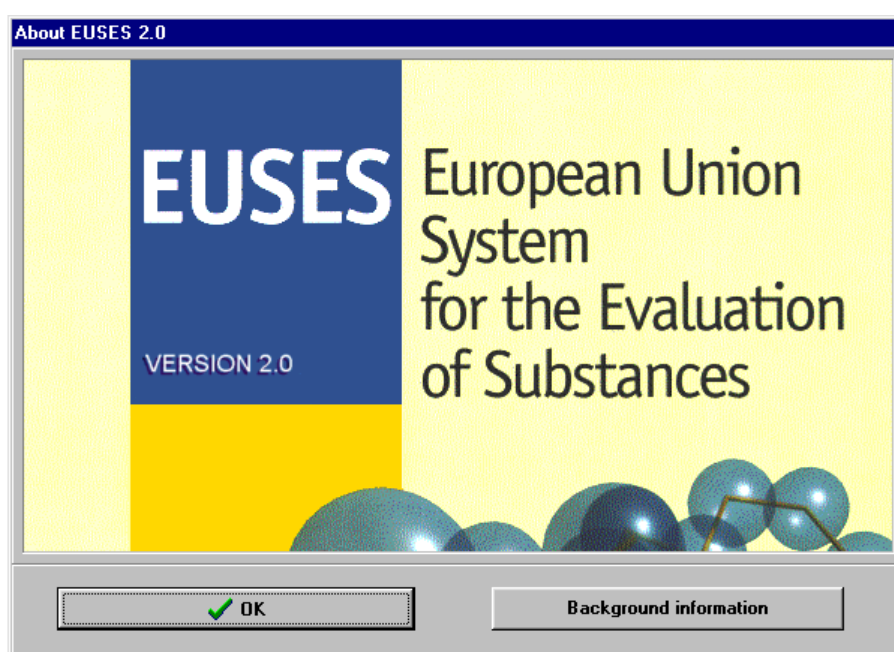The program will start with displaying the screen shown in Figure 2-1.

Figure 2-1 EUSES Start-up window

Press the [Background information] button to get more information about EUSES.

Press [Ok] to continue.

Leaving the program

The **File/Exit** option enables you to leave the program. The option can also be executed by typing <Ctrl-X>, <Alt-F4> or by clicking the close button of the main window [X].

If any modifications have been made since the last save you will be asked if you wish to save your work before shutting down the program.

After this a confirmation dialog will appear. Press the [Yes] button to confirm. If you press the [No] button, you will return to the EUSES program.

2.4 COMPONENTS OF EUSES

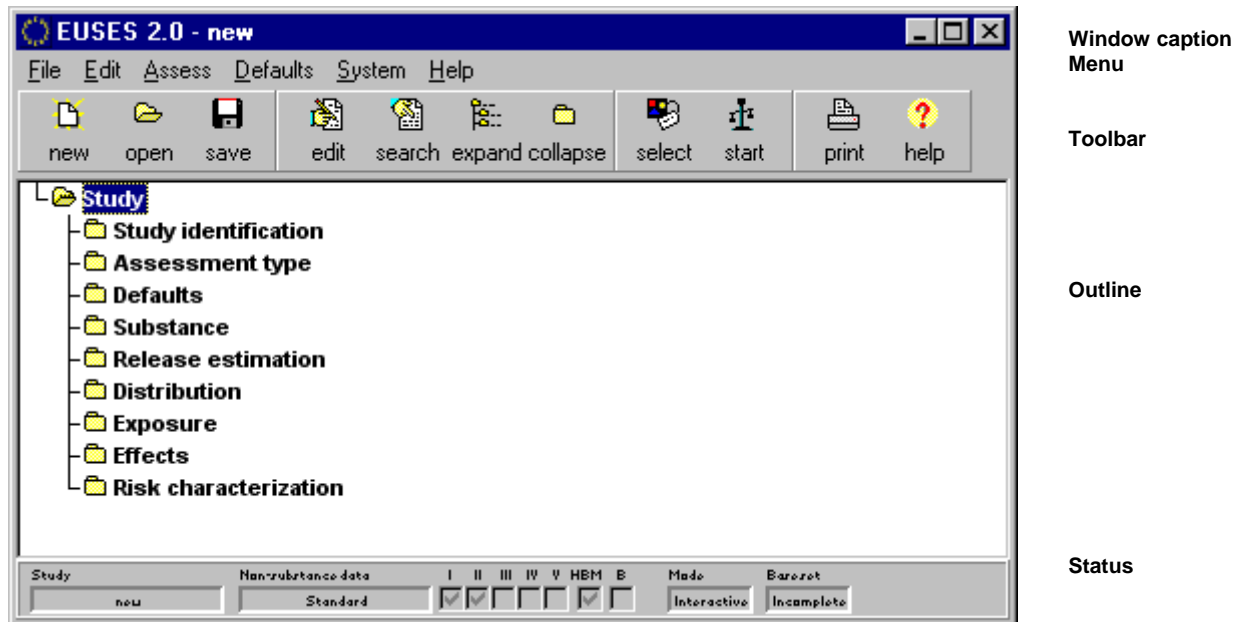The EUSES Window is shown in Figure 2-2. It contains the following components:

Figure 2-2 Main window of EUSES

Window caption
The top of the window contains the program name followed by the name of the current study.

Menu
The menu is accessible by the mouse or by pressing the <Alt> key with the underlined letter, e.g. <Alt-F> to select the **File** option.

Toolbar
The toolbar contains buttons that give you direct access to several EUSES functions. A button description appears after a few seconds if you place the mouse cursor on the button .

Outline
All data of EUSES is organised in the outline. You can browse through this outline, open sections that you want to inspect or edit, close sections that you are not interested in and edit or view the corresponding parameters.
A pop-up menu appears if you click on the right-button of the mouse or press <F10>. The outline is explained in more detail in paragraph 2.7.

Statusbar
The statusbar shows the name of the current study, the name of the defaults (non-substance data set), the assessment types (I -V), use of the Hydrocarbon Block Method (HBM), an indicator for the assessment of biocides (B), the mode (direct, interactive or outline) and an indicator that states whether the base set has been entered completely. Consult the help file for more information about the base set (**Help/Search**, next type 'base set').

2.5 STANDARD KEY AND MOUSE USAGE

2.5.1 Standard keys

The standard key usage of EUSES is the standard key usage of Windows. E.g.

<F1>	Help.
<Tab>	Move to the next field or button.
<Shift-Tab>	Move to the previous field or button.
<Enter>	Move to the next field, select a menu option, press a button, select an element of a (pick)list or choice in a picklist.
<Esc>	Leave current window (no values are stored) or menu item. Clicking the [Cancel] button in a window gives the same reaction.
<Alt-*Underlined letter*>	Select the menu or menu option with the underlined letter, e.g. <Alt-A> selects the **Assess** option.

If you are not familiar with the standard keys in Windows, please read your Windows manual.

2.5.2 Accelerators

Some menu options are accessible by a special key (also known as an accelerator): These are shown in Table 1. Table 3 contains a short explanation of the menu options.

Table 1. Accelerators of EUSES

Key	Menu option (if applicable)
<Ctrl-A>	**Assess/Select**
<Ctrl-D>	**Assess/Direct mode assessment**
<Ctrl-E>	**File/Open/Empty study**
<Ctrl-I>	**Assess/Interactive mode assessment**
<Ctrl-N>	**File/New Study**
<Ctrl-O>	**File/Open/Study**
<Ctrl-P>	**File/Print**
<Ctrl-S>	**File/Save**
<Ctrl-X>	**File/Exit**
<F1>	**Help/Context**
<Ctrl-F1>	Parameter information
<F2>	**Edit/Edit/View**
<Ctrl-F2>	**Edit/Goto**
<F3>	**Edit/Search**
<Ctrl-F3>	**Edit/Search again**
<F9>	**Assess/Start**
<F10>	Outline pop-up menu (See Table 4**)**

2.5.3   Outline keys

Table 2 contains the keys that may be used in the outline

Table 2. Keys in the outline

Key	Short explanation
+	Expand current section
-	Collapse current section
*	Expand all subsections of current section
<Enter>	On a value: Edit or view the corresponding parameter
	On a section: Expand the section if it is collapsed,
	collapse the section if it is expanded
	Same as double-clicking the left mouse button
<Home>	Move to top of outline
<End>	Move to end of outline
<PgUp>	Move one page up
<PgDn>	Move one page down
<Ctrl-PgUp>	Move to section at the top of the window
<Ctrl-PgDn>	Move to section at the bottom of the window
<F1>	Context help (description of current section)
<Ctrl-F1>	Parameter information
<F2>	Edit/view
<Ctrl-F2>	Goto current section (starts an assessment in current mode, with current section as first screen)
<F3>	Search a parameter, using either the name or a part of the description
<Ctrl-F3>	Search again
<F10>	Pop-up menu (or right mouse-button)

2.5.4   Mouse actions in the outline

The following mouse actions are supported in the outline:

Left button click   Select a section of the outline

Right button click   Show the outline pop-up menu (same as <F10>)

Left button double-click On a value: Edit or view the corresponding parameter
                    On a section: Expand the section if it is collapsed,
                                       collapse the section if it is expanded
                    (Same as <Enter>)

2.6 MENU STRUCTURE

The menu structure of EUSES is shown in Table 3. For more detailed information about the various menu options see the EUSES help system.

Table 3. The menu structure of EUSES

Menu option	Short explanation
File	File menu.
New Study	Start a new study.
Open/Study	Load a study from the database.
Save or Save As/Study	Save the current study in the database.
Erase/Study	Erase a study from the database.
Open/Empty study	Opens the empty study
Open/Substance	Load a substance from the database into the current study.
Save As/Substance	Save the selected substance to the database.
Erase/Substance	Erase a substance from the database.
Open/Block as substance	Load a block from the database as a substance (HBM not selected).
Save As/Substance as	Save the selected substance to the database as a block (HBM not selected)
Erase/Block	Erase a block from the database.
Open/Defaults	Load defaults from the database.
Save As/Defaults	Save the current defaults to the database.
Erase/Defaults	Erase a set of defaults from the database.
Import	Import substance data from ConsExpo, Snif or another EUSES.
ConsExpo	Import a ConsExpo report.
Snif	Import a Snif file (new chemicals).
Euses	Import an EUSES study.
Export	Export study or substance data to another system.
Euses	Export study to another Euses.
Directories	Directory set-up.
Print	
[History list]	Select item from history list (study, substance, block or set of defaults)
Exit	Leave the program.
Edit	Edit options and outline manipulation.
Edit/view	Edit (if possible) and/or view the current section of the outline.
Goto	Goto current section. Start an assessment in current mode with the current section as the first screen.
Search	Search a parameter by name or by description.
Search again	Search the next parameter by name or by description.
Collapse	Collapse the current section (hiding all subsections and parameters).
Collapse all	Collapse the entire study.
Expand	Expand the current section (showing all its direct subsections and parameters).
Expand all	Expand the entire study.

Table 3. (continued)   The menu structure of EUSES (continued)

Menu option	Short explanation
Assess	Assessment options.
Select	Select assessment types, mode and use of the Hydrocarbon Block Method.
Start	Start an assessment for the study in the current mode.
Direct mode assessment	Start an assessment for the study in direct mode.
Interactive mode ...	Start an assessment for the study in interactive mode.
Outline mode ...	Start an assessment for the study in outline mode.
Reset calculations	Reset all results of previous assessments.
Reset Defaults	Reset the current defaults.
Defaults	Non-substance data.
Edit	Edit current defaults.
System	Application specific options.
Options	Interface set-up and Finish button behaviour.
Help	EUSES help system.
Contents	Help contents - overview.
Context	Context specific help.
Search	Search a specific help topic.
Background information	Background information about EUSES.
Program	Program specific help.
Model	Help about the EUSES model.
Definitions	Definitions of the program (study, substance,...).
About	About EUSES. Start-up window.

A special outline pop-up menu appears if you click the right mouse-button or press <F10>. Table 4 contains the available options.

Table 4. The pop-up menu of the EUSES outline

Menu option	Applies to	Short explanation
Collapse	(Partial) expanded sections	Collapse the current section.
Expand	(Partial) collapsed sections	Expand the current section.
Edit/view	Input, defaults and results	Edit/view the current section.
Goto	Current section	Goto current section, i.e. start an assessment in the current mode with the section as the first screen.
Information	Parameters	Show name and default value of current parameter.

2.7 PROGRAM FLOW

This paragraph explains the different ways to interact with EUSES. First the various way to run an assessment are explained. Further paragraphs will explain the input of data and the database operations.

1. Open a study from the database or work on a new study.
2. Choose **Assess/Select** from the menu (or press <Ctrl-A>).
   - 2.1 Select the assessment types, determining the scope of the risk characterisation.
   - 2.2 Also check whether you want to perform an assessment of biocides.
   - 2.3 Check whether you want to use the Hydrocarbon Block Method (HBM).
   - 2.4 Choose the mode
       - **Direct mode** if you prefer minimal input and do not want to inspect and/or edit the intermediate results.
       - **Interactive mode** if you want to inspect the intermediate results and replace them if necessary.
       - **Outline mode** if you want to work directly on the outline. While the other modes guide you through the input and (intermediate) results, the outline mode will not. It will only perform the assessment calculations.
   - 2.5 Check whether you would like to see the defaults screen in the interactive and direct modes.
3. Press the [Ok] button. The outline will be rebuild to reflect the selections you made.

The outline consists of sections and nodes.

An open folder represents a section that may be collapsed.
A closed folder represents a section that may be expanded.
A document represents a node.

If you select all assessment types and you do not use the HBM, the outline will contain the following sections (only one level expanded):

Study
    Study identification
    Assessment type
    Defaults
    Substance
    Release estimation
    Distribution
    Exposure
    Effects
    Risk characterisation

How do you continue right now? This depends on the chosen mode and will be explained in the next paragraphs.

2.7.1   Direct mode

The direct mode is the easiest manner to operate EUSES. Novice users are advised to start with this mode before they start working with the more advanced features like the interactive and the outline mode. Users that do not want to change the intermediate results should use this mode also.

4. Select **Assess/Start** (or press <F9> or <Ctrl-D>).
5. EUSES will present the first input window. Enter the necessary values. Use the help key (<F1>) if you are not sure which parameters are required, or what is meant by a certain parameter. Paragraph 2.7.4 explains how to enter values.
6. The window contains the following buttons (see example in Figure 2-3):

[Next]	Goes to the next input window (or <PgDn>).
[Finish]	Finishes the assessment and leads you to either the first window of the next chapter (a chapter is one of the sections directly following the study node, e.g. release estimation, exposure, etc.) or to the risk characterisation result table. This depends on the value of 'Finish button behaviour' in **System/Options**. Pressing <Ctrl-PgDn> can also start this option.
[Prev]	Steps back to the previous input window (or <PgUp>).
[Abort]	Leaves the window and return in the outline.
[Undo]	Resets the changes that have been made to parameters on this input window.
[Help]	Displays context sensitive help information (or <F1>).

Use the [Next] button to skip to the next window. Next, enter the input parameters and continue. The [Finish] button acts as a short cut to the final windows.

Figure 2-3 Window during direct or interactive mode

Table 5 shows the parameters that are required for EUSES in order to make an assessment calculation.

Table 5. Required parameters

Name	Second name*	Location	Assessment types
Molecular weight	Molw	Physico-chemical properties	I-V
Octanol-water partition coefficient	Kow	Physico-chemical properties	I-V
Water solubility	Sol	Physico-chemical properties	I-V
Vapour pressure	Vp	Physico-chemical properties	I-V
Physical state of a substance	PhysicalState	Worker exposure input	V

*The second name is used in the background report (EC-EUSES, 2003).

2.7.2 Interactive mode

The interactive mode is an enhancement of the direct mode. It operates in the same manner, but it contains all intermediate results. Their values may be changed. When you continue, using the [Next] buttons, the changed values are used in the subsequent calculations. This mode therefore allows you to replace estimated values with measured data.

2.7.3 Outline mode

The outline mode offers you the highest level of control, but no navigation facilities. It is intended for expert users. You can replace results with better values, adjust input or defaults again and restart the assessment. The organisation of the outline allows you to open the sections of interest and close any results that might not be interesting at first.
This approach is radically different from USES 1.0. In USES 1.0 all data was presented to you by the program, you entered the data and the program continued (like the direct and interactive mode). In EUSES it is also possible to examine and alter the data in the order you choose.
A user who works in the outline mode would :

4. Locate the appropriate sections by either expanding the sections ('+' and '*' keys or pop-up outline menu (<F10>) or search a certain parameter (**Edit/Search** or <F3>).
5. Enter values with **Edit/Edit/view** (<F2>).
6. Start the assessment with **Assess/Start** (<F9>). The outline mode shows no screens, but performs all calculations.
7. Inspect the results (like step 4).
8. Replace estimates with better values, adjust defaults if necessary (like step 5).
9. Start the assessment again (like 6), etc.

This method of risk assessment is based on a very important EUSES principle:

A parameter that is set by the user will not be overwritten by a calculated value

The user can however 'unset' a parameter. This is one of the methods to enter a value for a parameter. These methods will be explained in the next paragraph.

2.7.4 Parameter input

Numerical parameters, as shown in the example in Figure 2-4, have the following properties:

• **The description**
  E.g. 'Melting point'
• **The input area**
  This is the box containing the value. If this box has the same background colour as the window, it can not be altered. Such a parameter is *closed*.
• **The unit**
  E.g. [°C]. If several units are allowed, there will be a box around the unit. Note that all EUSES parameters are stored as an internal value in SI units. Changing the unit merely affects the representation, not the internal value.
• **The state indicator**

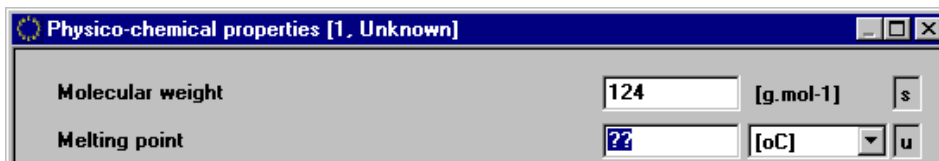The little square box with a single letter (see Table 6).

Figure 2-4 Example of numerical parameters in physico-chemical properties

To enter a value, move the mouse cursor to the input area and click the left mouse button. You can also use the <Tab> and <Shift-Tab> keys to move to the input area. Note that you can not move to a closed parameter, although you can sometimes change the unit.

Next you enter the numerical data by typing:

1. The number.
2. A question mark (?) if you want to assign the default value (or previous calculated value).
3. The greater-than sign (>) followed by a number, e.g. '> 12e3'. The parameter has a value that is greater than the entered value.
4. The less-than sign (<) followed by a number, e.g. '<1.414'. The parameter has a value that is less than the entered value.

All digits entered are considered to be significant. Calculated parameters show only 3 significant digits. Defaults, set and imported parameters show 7 significant digits. The internal accuracy is much higher, approximately 25 digits (IEEE double precision floating point).
Parameters that have no value yet or are calculated using wrong input (e.g. result of a division by zero) are represented by '???'. Such a parameter has the value 'no-value'.

If a box surrounds the unit, you may change the unit. Use the <↑> and <↓> keys to browse through the unit list. Note that a EUSES unit should not be interpreted as a physical unit; it is a conversion factor for representation purposes. The octanol-water partitioning coefficient (Kow) supports units [-] and [log10], allowing you to enter the 'scalar' value or its log.

If you enter the number first and then the unit, EUSES assumes that you want to enter the value in the given unit and does not convert the number.
However, if you change the unit and not the number, EUSES assumes that you want to convert the number to this unit and recalculates it according to its new unit.
E.g., you enter 2.8 for Kow; next select the [log10]; press the <Tab> key, the number will not change. Now select unit [-], and press <Tab> again. The number will be converted.
Note that although some parameters are closed, you can change the unit.

The state box reflects the last change of the parameter. It contains one of the following letters:

Table 6. State of the parameter

State	Description
d	The parameter was **d**efaulted (neither set nor output)
i	The parameter was **i**mported
o	The parameter was **o**utput (calculated)
s	The parameter was **s**et by the user
u	The parameter is **u**ndefined

Not all parameters are numerical. The other types are:

- List parameters, offering a list of fixed choices. E.g. Industry category. Use the <?> or <Del> key to set it to its default value.
- Checkbox parameters. You check them if they apply, e.g. in emission input (non-production step) you can check the relevant life cycle steps. To check a checkbox, select it with the mouse and click the left button or use the space bar to toggle the value. In the outline and in reports their values are depicted as 'yes' or 'no'.
- Text parameters, allowing alphanumerical data. E.g. CAS-no.

Text parameters do not show their state. Many text parameters are used for database operations. These will be explained in the next paragraph.

2.7.5   Database operations

You can save your study at any moment and continue later on. The part of EUSES used to save and store data is called the database. This database supports four kind of related data groups (or database entities):

- **Study**
  All data related to the current assessment
- **Defaults**
  The non-substance related data and data describing the environment
- **Substance**
  Physico-chemical properties, human exposure input, (eco)toxicological effects and usage data
- **Block**
  Part of a Hydrocarbon Block. Physico-chemical properties, human exposure input and (eco)toxicological effects data
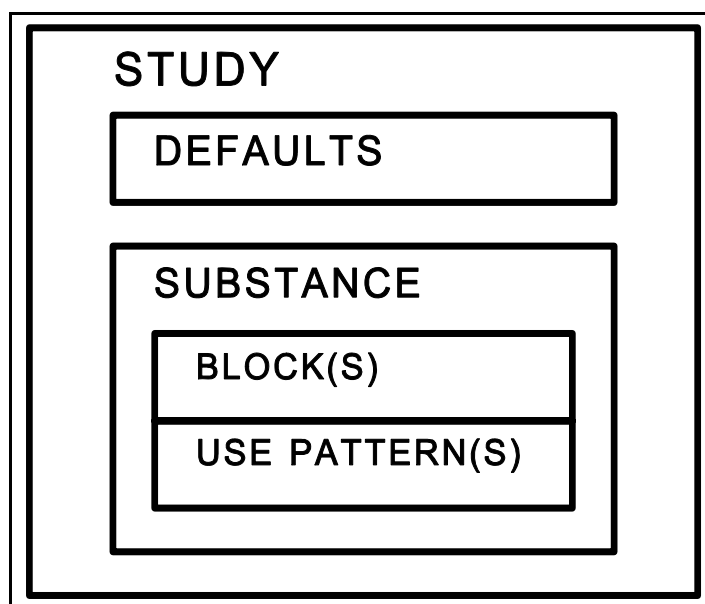
Figure 2-5 shows how the database entities relate.

```
┌──────────────────────────────────────┐
│  ┌────────────────────────────────┐  │
│  │ STUDY                          │  │
│  │  ┌──────────────────────────┐  │  │
│  │  │ DEFAULTS                 │  │  │
│  │  └──────────────────────────┘  │  │
│  │                                │  │
│  │  ┌──────────────────────────┐  │  │
│  │  │ SUBSTANCE                │  │  │
│  │  │  ┌────────────────────┐  │  │  │
│  │  │  │ BLOCK(S)           │  │  │  │
│  │  │  ├────────────────────┤  │  │  │
│  │  │  │ USE PATTERN(S)     │  │  │  │
│  │  │  └────────────────────┘  │  │  │
│  │  └──────────────────────────┘  │  │
│  └────────────────────────────────┘  │
└──────────────────────────────────────┘
```

Figure 2-5 Relations of the database entities

You can select the database operations from the File menu for study, substance, blocks and defaults.

Every database entity has an identification section. It contains at least:

- **Name**
  This name must be unique for the entity
- **Description**
  The description can be used to search through the database

To save the study:

1. Select the section 'Study identification' and click the left-mouse button. Next press <F2>.
2. Enter at least a (unique) name.
3. Select option **File/Save** (or type <Ctrl-S>) or **File/Save As/Study**. A message appears that confirms that your study was saved.

To load a study:

1. Select option **File/Open/Study** from the menu (or type <Ctrl-O>)
2. If you made any changes to the current study in the outline, EUSES will advise you to save your study first,
3. EUSES shows a special input window : the *database browser*. You can use the scroll bar at the right, the cursor keys and the <PgUp> and <PgDn> keys to browse through the list of names and descriptions. If you know the name, use the [Search] button.
   If you found the study, select it with either the cursor keys or the mouse and press the [Load] button.
4. The outline will be rebuild, containing the study from the database.

2.8 ORGANISATION OF THE OUTLINE

Table 7. shows the relation between EUSES information and the sections. The AT column specifies the valid assessment types.

Table 7. Outline organisation

Information	AT	Section
Assessment identification, profile	I-V	Study identification
Assessment types, Hydrocarbon Block Method, Operation mode	I-V	Assessment types
Substance related information	I-V	Substance
Substance identification in the database	I-V	Substance/Substance identification
Block specific information (HBM only)	I-V	Substance/Blocks • Block identification
Physico-chemical properties	I-V	Substance/Physico-chemical properties
Partition coefficients and Bioconcentration factors	I-III	Substance/Partition coefficients and Bioconcentration factors
Degradation and transformation rates	I-III	Substance/Degradation and transformation rates
Use pattern, tonnages, life cycles, industrial category, use category, main category	I-III	Release estimation • Characterisation and tonnages • Use patterns • • Emission input data
Defaults, non-substance data	I-V	Defaults
Emission related (intermediate) results	I-III	Release estimation
Distribution, sewage treatment	I-III	Distribution
Exposure data	I-V	Exposure
Secondary poisoning	II	• Secondary poisoning
Humans exposed to or via the environment	III	• Humans exposed to the environment
Consumer exposure	IV	• Consumer exposure
Human exposure at the workplace	V	• Human exposure at the workplace
Effects	I-V	Effects
Input of effects data (environment and humans)	I-V	• Input data
Micro-organisms	I	• • Micro-organisms
Aquatic organisms	I	• • Aquatic organisms
Terrestrial organisms	I	• • Terrestrial organisms
Birds	II	• • Birds
Mammals	II,III	• • Mammals
Humans	III	• • Humans
PNECs - environmental	I-III	• Environmental effects assessment
Risk characterisation	I-V	Risk characterisation

If you select an assessment type, the corresponding section will appear automatically. E.g., if you select modes IV and V (consumer exposure and exposure at the workplace), only the

sections containing information about this modes will appear.

If you select only local modes (i.e. Ia and/or IIIa), minimal regional information will appear. Because some regional concentrations are used as background concentrations, their sections will appear. If you select only regional modes (Ib and/or IIIb), no local information will appear.

The sections 'Study identification', 'Assessment types', 'Defaults' , 'Exposure', 'Effects' and 'Risk characterisation' appear always.
'Release estimation' and 'Distribution' appear only if assessment types I, II and/or III are selected.

If you use the Hydrocarbon Block Method, you are allowed to introduce several blocks (but only one use pattern). This 'blocks' sections occur in 'Substance', 'Exposure', 'Effects' and 'Risk characterisation'. The last section contains a total risk section, which contains the summed Risk Characterisation Ratios. The Hydrocarbon Block Method only allows assessment types I and/or II.

Appendix 1. shows the general outline structure.

Checking Assessment of biocides on local scale only will have the following effects:
- Only one use pattern is available
- Emission input is simplified
- Regional scale input windows (Ib and IIIb) are not available
- Worker exposure (V) is not available
- The Hydrocarbon Block Method is not available

The option is useful for biocides assessments, because only relevant screens for biocides assessment are shown when this option is checked.

Besides the normal mode in which EUSES usually starts EUSES can also be run in batch command mode (See paragraph 2.9).

2.9 CONSEXPO

For some consumer exposure calculations, EUSES can make use of the separate ConsExpo program; the ConsExpo program package must then be installed on your computer system.
The use of the ConsExpo program is integrated in the Euses program flow:
- The ConsExpo program calculations are done after the "manual input" of consumer exposure data in the EUSES program
- The ConsExpo program is automatically started by EUSES.
- The ConsExpo output (report file) is imported into EUSES.
ConsExpo report files can also be imported through the menu option File, Import, ConsExpo.

2.10 BATCH COMMAND MODE

Besides the normal mode in which EUSES usually starts EUSES can also be run in batch command mode.

In this mode EUSES will execute a command file. The command file is a text file containing specific commands that will be sequentially executed by EUSES.

2.10.1 Usage

EUSES enters the batch command mode when EUSES is started from the command line with the –f parameter.

The general usage of EUSES for the batch command mode is :

Euses20.exe –f <command-filename>

For example, suppose you have a command file called "MyCommands.ebc" you can execute it by typing:

Euses20.exe –f MyCommands.ebc

2.10.2 Syntax

A command file is a text file containing commands that are delimited by carriage returns.

The following paragraphs describe the commands that can be interpreted by EUSES.

Loading and saving

Load and save structure (study, substance, chemical, defaults)
LOAD_STUDY   <name>
LOAD_SUBSTANCE <name>
LOAD_CHEMICAL
LOAD_DEFAULTS
SAVE_STUDY
SAVE_SUBSTANCE
SAVE_CHEMICAL
SAVE_DEFAULTS

Import and export files (EXF)
IMP_EUSES   <filename>
EXP_EUSES   <filename>

Entering data

Set context (chemical, usage, step)
SET_CONTEXT   <chemical> <usage> <step>
SET_CHEMICAL   nn

```
SET_USAGE          nn
SET_STEP           nn
SET_CONS           nn
SET_WORK           nn
(starting from 0)
```

Set parameter values
SET_PARAM_VALUE   <parameter-name> <parameter-value> {<units>}

Run an assessment
RUN_SILENT

Output to a spool file

Open and close spool file
SPOOL_OPEN   <filename>
SPOOL_CLOSE

Print text
SPOOL_TEXT "abc"

Write a single parameter
SPOOL_PARAM   <parameter-name>

Controlling execution

Quit the program after completion of this command file
QUIT

Comments

A single line comment can start with (after any white space)

- //
- #
- ;
- --
- REM

Multi-line comments are all lines enclosed in a pair of "/*" and "*/".

2.11 THE HELP SYSTEM

EUSES uses the Windows help system. If you are not familiar with Windows help, select the menu option **Help/Contents**, or press the <F1> key.

All input and result windows contain a help button, that gives you background information on the current window.

The help windows and the outline are context-sensitive and contain scientific background information on the data presented. In many cases a reference is made to the report on EUSES (EC-EUSES, 2003). Information about the models can be found in this report. For an example of a help window, see Figure 2-6.
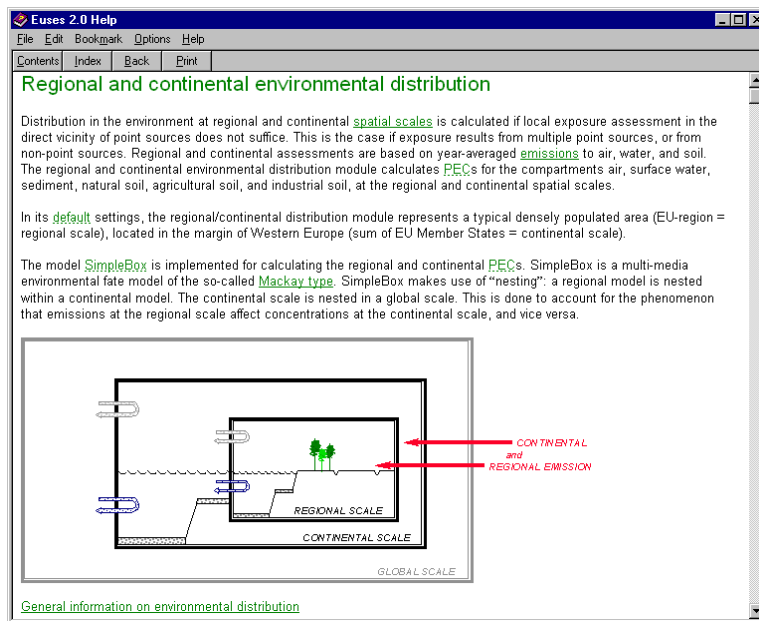

Figure 2-6 Example of a help window

2.12 EUSES 1.0 AND EUSES 2.0

Table 8. contains the most important differences between EUSES 1.0 and EUSES 2.0.

Table 8. EUSES 1.0 and EUSES 2.0

	EUSES 1.0	EUSES 2.0
Operating environment	16-bit, MS-Windows 3.x	32-bit, MS-Windows 95, 98, 2000, NT, XP
Use patterns	10 max	20 max (with titles)
Life-cycle steps	5 (production, formulation, processing, private use, recovery)	6 (production, formulation, industrial use, private use, service life, waste treatment)
Emission Scenario Documents	No	Yes
Biocides scenarios	No	Yes
Consumer exposure scenarios	1	10 max (with titles)
Worker exposure scenarios	1	10 max (with titles)
Marine (salt water) assessment	No	Yes
Regional distribution model	SimpleBox 2.0	SimpleBox 3.0 (incl. global scales, marine compartments)
Sediment effects	No	Yes
Multiple chronic endpoints	No	Yes
Non-threshold effects	No	Yes
Ref-MOS, MRR, AOEL, AER	No	Yes
Printing	Built-in report generator	Export to Word® and Excel®
Batch command mode	No	Yes
Import facilities	EXP (EUSES), HedSet, Snif	EXP (EUSES), Snif, ConsExpo

The Euses 2.0 program package contains a special EXF file :
default_Euses1.0_in_Euses2.0.EXF
This file contains a set of parameters with the Euses 1.0 default values. This set of parameter values can be used to do "Euses 1.0 compatible" calculations in Euses 2.0.

2.13 EUSES 2.0 AND EUSES 2.1

Euses version 2.1 (i.e. 2.1.0, 2.1.1) has no major structural or technical changes, as compared to Euses 2.0. The main feature of Euses 2.1 is that is contains the implementations of more Emission Scenarios Documents, primarily of biocides Product Types.

2.14 EUSES 2.1.1 and Euses 2.1.0

The latest version is Euses 2.1.1. The two main differences with Euses 2.1.0 are:
- Extended temperature correction
- More scenarios for PT-18

3 ERROR MESSAGES

3.1 FATAL ERRORS

Fatal errors occur if there is not enough memory to run the program. The effect of a fatal error is that the program aborts and an error message window is displayed.

General protection faults (GPFs) may be caused by program failure, other programs and/or wrong computer set-up parameters. A general protection fault generates the following message:

General Protection Fault at *SSSS:AAAA*

Please write down the (hexadecimal) number *SSSS:AAAA*. Contact the EUSES helpdesk for further assistance (tel: +(39) 332-785.866).

Terminate all applications after a fatal error or a general protection fault and leave Windows. This is recommended, because these errors tend to cause problems in Windows and other Windows programs.

3.2 RANGE ERRORS

A range error message will appear if you enter a value that is less than the minimum or greater than the maximum of a parameter. The given range is an *advised* range. You are always allowed to enter a value outside this range. See Figure 3-1.
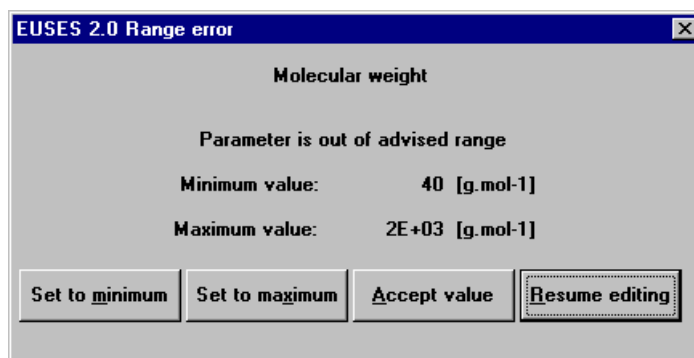
Figure 3-1 Range error

The possible choices are:

1. Set to minimum   Set the parameter to the minimum value.
2. Set to maximum   Set the parameter to the maximum value.
3. Accept value   Accept the value as entered. This option may be used in certain cases to bypass specific model calculations.
4. Resume editing   Enter a new value.

3.3 ERROR MESSAGES

The window of the general EUSES error is shown in Figure 3-2. It contains a description of the error and one or more possible solutions.
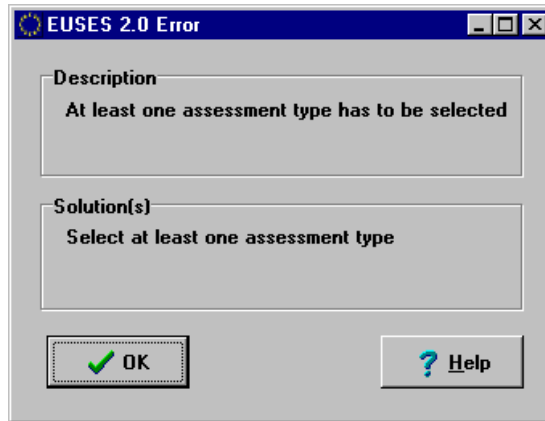

Figure 3-2 General EUSES error message

When you press <Enter> the error message will be cleared. The error messages are listed in alphabetical order.

Message
At least one assessment type has to be selected.

Explanation
You did not select any assessment types (marked I - V) in the **Assess/Select** input window.

Solution
Select at least one of the assessment types

Message
Can't import EUSES file version *version-number*

Explanation
You are trying to import a EUSES export file that bears a newer version number than your current one. Newer versions of EUSES can import old export files, but older versions can not import export files from newer versions.

Solution
Contact the EUSES helpdesk for a newer EUSES version. Tel: +(39) 322 - 785.866

Message
Can't load from database version *version-number*

Explanation
You are trying to load a study, substance, set of defaults or block from a database that bears a newer version number than your current EUSES program. Newer versions of EUSES can use old databases, but older versions can not use databases from newer versions.

Solution
Contact the EUSES helpdesk for an EUSES update. Tel: +(39) 322 - 785.866

Message
Data format error

Explanation
You are either trying to load a study, substance, set of defaults or block from the database or you are attempting to import a study. Data format errors occur if the structure of the database or export file was changed by another program (i.e. not EUSES). Data format errors can also occur if one of the files is corrupted.

Solution
This is a severe error. If you changed the database or the file with another program, restore the backup version.
Contact the EUSES helpdesk in case of doubt. Tel: +(39) 322 - 785.866

Message
Export study failed

Explanation
An abnormal condition occurred during the execution of the menu option **File/Study/Export/EUSES**.

Solution
Possible causes of this error:
- The disk you try to write to is full. Check the free space on the disk.
- The network drive you write to does not allow you to create and/or write files (networks only). Contact your network administrator or choose another location for your export file.
- The file could not be opened due to a lack of file handles. Increase the number of open files in your CONFIG.SYS (FILES=xxx) or terminate current applications that use lots of file handles.
- Physical write error (disk drive crash).

Message
Import size error

Explanation
This error might occur during **File/Import/EUSES**. This error has two possible causes:
1. Low memory
2. Import file corruption

Solution
The low memory situation can occur if EUSES is not the only program that is currently running. Close other active applications and try to import the file again. If the problem does not disappear, check the solutions for the 'Data format error'.

Message
Import SNIF failed

Explanation

An abnormal condition occurred during the execution of the menu option **File/Study/Import/SNIF**.

Solution

Possible causes of this error:
- The file you try to import is not a valid SNIF file (an export file generated by NCD or SNIF).
- The file could not be opened due to a lack of file handles. Increase the number of open files in your CONFIG.SYS (FILES=xxx) or terminate current applications that use lots of file handles.
- Physical read error (disk drive corruption).

Message

Import study failed

Explanation

An abnormal condition occurred during the execution of the menu option **File/Study/Import/EUSES**.

Solution

Possible causes of this error:
- The file you try to import is not a valid EXF file (an export file generated by EUSES).
- The file could not be opened due to a lack of file handles. Increase the number of open files in your CONFIG.SYS (FILES=xxx) or terminate current applications that use lots of file handles.
- Physical read error (disk drive corruption).

Message

Load block/defaults/substance/study failed

Explanation

A database must be present before you can load something from it. E.g. to create the EUSES database for studies, save a study first.
If you already worked with the database, the problem might be more severe. Check the following solutions:

Solution

- Is the database directory of **File/Directories** a valid directory? If not, change it and try again.
- Have you got rights to create files and to read from and write to them (networks only)? If not, select another database directory or contact your network administrator.
- Does the directory contain any files with extension ETB and size 0 bytes? If so, remove them, and delete the files with extension EDT bearing the same name. E.g. if the directory contains a STUDY.ETB size 0 bytes, delete STUDY.ETB and STUDY.EDT.
- The file could not be opened due to a lack of file handles. Increase the number of open files in your CONFIG.SYS (FILES=xxx) or terminate current applications that use lots of file handles.

In case of doubt, contact the EUSES helpdesk at +(39) 332-785.866

Message
Parameter not found

Explanation
1.   During **Edit/Search** you entered a name or description that did not match any EUSES parameter.
2.   If you search from the current position, there are no more parameters matching the given name or description.

Solution
1.   Supply another name or description.
2.   Start the search using 'Search from top'

Message
Need parameter : Parameter name

Explanation
EUSES could not continue an assessment calculation due to an essential parameter without a value.

Solution
The following parameters are essential:

Name	Second name	Location	Assessment types
Molecular weight	Molw	Physico-chemical properties	I-V
Octanol-water partition coefficient	Kow	Physico-chemical properties	I-V
Water solubility	Sol	Physico-chemical properties	I-V
Vapour pressure	Vp	Physico-chemical properties	I-V
Physical state of a substance	PhysicalState	Worker exposure input	V

The second name is used in the background report (EC-EUSES, 2003).
Assign a value to the essential parameters and continue.

Message
Not found

Explanation
You are searching for a database entity (study, substance, block or set of defaults) that does not match the given name or description.

Solution
Enter another name and/or description.

Message

Resetting hydrocarbon block method is not allowed if there is more than one block defined

Explanation

You tried to deactivate the HBM in the **Assess/Select** input window. EUSES disables this possibility if the current study contains more than one block, because you might be discarding valuable information.

Solution

In the outline, first select the 'Substance' section, then expand it, next locate the 'Blocks' section and select it. Type <F2> to edit the current blocks. Delete all but one block and then reset the hydrocarbon block method again with the **Assess/Select** menu option. If you do not want to lose this study, save it first with **File/Save**!

You can also save your study first and then select the menu option **File/New Study**. A new study always contains only one block and only one use pattern.

Message

Save block/defaults/substance/study failed

Explanation

You tried to save either a block, a set of defaults, a substance or a study. During the save operation an abnormal condition occurred.

EUSES was either unable to create a database (if it did not exist yet) or write to an existing database.

Solution

If this is the first time you try to save your data, EUSES can not create the database. Please check the following:

- Is the database directory of **File/Directories** a valid directory? If not, change it and try again.
- Is the free space on the drive that contains the database sufficient? If not, free more disk space and try again.
- Have you got rights to create files and to write to them (networks only)? If not, select another database directory or contact your network administrator.
- Does the directory contain any files with extension ETB and size 0 bytes? If so, remove them, and delete the files with extension EDT bearing the same name. E.g. if the directory contains a STUDY.ETB size 0 bytes, delete STUDY.ETB and STUDY.EDT.
- The file could not be opened due to a lack of file handles. Increase the number of open files in your CONFIG.SYS (FILES=xxx) or terminate current applications that use lots of file handles.

In case of doubt, contact the EUSES helpdesk at +(39) 332-785.866

Message

Save not possible, because name is 'Unknown' or 'New' or description is empty.

Explanation

You tried to save either a block, a set of defaults, a substance or a study. EUSES requires that you enter a valid name and a description. Since EUSES uses the names 'Unknown' and 'New' for new studies, substances and blocks, you are not allowed to use these names in the database.

Solution

Select the identification section of the block, defaults, substance or study. Edit it with <F2> . Enter a name that does not equal 'New' or 'Unknown' and enter a description. You are now able to save the database entity.

Message

Setting hydrocarbon block method is not allowed if there is more than one use pattern defined

Explanation

You tried to activate the HBM in the **Assess/Select** input window. EUSES disables this possibility if the current study contains more than one use pattern, because you might be discarding valuable information.

Solution

In the outline, first select the 'Release estimation' section, then expand it, next locate the 'Use patterns' section and select it. Type <F2> to edit the current use patterns. Delete all but one use pattern and then set the hydrocarbon block method again with the **Assess/Select** menu option. If you do not want to lose this study, save it first with **File/Save**!

You can also save your study first and then select the menu option **File/New Study**. A new study always contains only one block and only one use pattern.

4 TECHNICAL REFERENCE

4.1 SYSTEM REQUIREMENTS

Minimal hardware requirements for EUSES are:
- 80486 DX or Pentium processor, operating on at least 50 MHz
- 8 Mb RAM or more
- VGA display, 800*600 pixels
- Fixed disk drive with 10 Mb available
- Mouse (or other pointing device)

Recommended hardware requirements for EUSES are:
- Pentium processor, operating on at least 300 MHz
- 64 Mb RAM or more
- VGA display, 1024*800 pixels (or more)
- Fixed disk drive with 20 Mb available
- Mouse (or other pointing device)

To install the program you will need a CD-ROM drive (for a CD installation) or a 3.5" high-density (1.44 Mb) disk drive (for a diskette installation). Alternatively, you can download the installation package from internet onto your computer hard disk and install Euses from there.

EUSES is a stand-alone system. Network operations with more than one user can result in error-prone behaviour. However, it can be installed on a network. It can only be used by one user at a time.

4.2 INSTALLATION

The steps required to install EUSES are as follows:

1.   Prepare to install.

2.   Start the EUSES set-up program (Setup.exe).

3.   Change the EUSES set-up settings.

After installation EUSES is ready to run. The steps are explained in further detail in the following paragraphs.

4.2.1   Prepare to install

Before you start installing EUSES you should:

•   Check the system requirements in paragraph 4.1.

•   If you intend to install EUSES on a network, log on to the file server on which EUSES is to be installed. Please read the note about networks in paragraph 4.1.

•   Start Windows.

4.2.2   Start the EUSES set-up program

Consult paragraph 4.2.2.1 in case of a CD installation or 4.2.2.2 in case of a diskette installation.

4.2.2.1   CD installation

1.   Insert the installation CD in the CD-ROM drive

2.   Press the [Start] button on the Windows taskbar. Next, select Run and type:
        drive:SETUP
        where *drive* is the letter of the CD-ROM drive. For example if your CD-ROM drive letter is E you would type: E:SETUP.

The set-up program will load.

4.2.2.2   Diskette installation

1.   Insert the first installation diskette in the floppy disk drive.

2.   Press the [Start] button on the Windows taskbar. Next, select Run and type:
        drive:SETUP
        where *drive* is the letter of the floppy disk drive (A or B).

The set-up program will load.

Figure 4-1 The first screen of the EUSES set-up

4.2.3 Change the EUSES set-up settings

The set-up program has a wizard to guide you through the installation process. You can always press [Next] to go to the next step, [Back] to go to the previous step and [Cancel] to optionally exit the set-up program.

The installation consists of the following steps:

- **Choose Destination Location**
  You can change the default destination location by clicking the [Browse] button. If you do so you can select an existing directory or enter a new directory name. A new directory will be created automatically by the installation program, asking you to confirm the creation. Press [Ok] to create/select the directory or [Cancel] to return. Press [Next] to go to the next step.
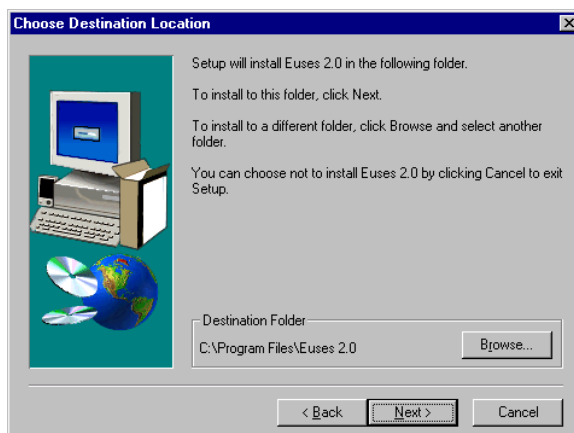

Figure 4-2 Choosing a Destination Location

- **Select Program Folder**

  You can select a Program Folder or type the name of a new Program Folder that will be created for you. After installation the Program Folder for EUSES can be found by choosing Start→Programs from the Windows taskbar. Press [Next] to start copying the files to the destination location.

Set-up will now start copying the files (see paragraph 4.3 for an overview). During this process you will see the window of Figure 4-3.
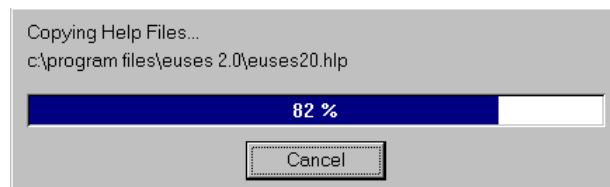

Figure 4-3 Progress indication during EUSES installation

Note : in case of a diskette installation you will be prompted for the second disk. When this happens, remove the first installation diskette from the floppy disk drive and insert the second one. Press [Ok] to continue.

The gauge indicates the progress of the installation. After copying the files, the Program Folder will be created. Next, the installation program shows a message that the set-up is completed. Press the [Finish] button to terminate the program and return to Windows. EUSES is now ready for use.

Figure 4-4 Screen shown after successful installation

4.3 EUSES FILES

After installation the following files are present in the destination directory.

1. Euses20.exe   The EUSES program file
2. Euses20.hlp   Windows Help file, containing the EUSES help topics
3. CEus20.dll   Additional program file (Windows Dynamic Link Library)
4. Default_Euses1.0_in_Euses2.0.EXF EXF file with default parameter values from EUSES 1.0
5. Templates\usesrpt.dot   Word template file
6. Templates\UsesRpt2.dot   Word template file

Your preferences will be saved in:

Euses.ini   File containing EUSES set-up information

EUSES will create the following files as soon as you save a study, a substance, a block and/or a set of defaults.

1. study.etb   Study descriptor table
2. study.edt   Study data
3. substanc.etb   Substance descriptor table
4. substanc.edt   Substance data
5. defaults.etb   Defaults descriptor table
6. defaults.edt   Defaults data
7. chemical.etb   Block descriptor table
8. chemical.edt   Block data

REFERENCES

EC-TGD 2003
Technical Guidance Document in support of
- Commission Directive 93/67/EEC on risk assessment for new notified substances
- Commission Regulation (EC) No. 1488/94 on risk assessment for existing substances
- Directive 98/8/EC of the European Parliament Council concerning the placing of biocidal products on the market

Part I, II, III, IV. European Commission, Joint Research Centre, European Chemicals Bureau, Ispra, Italy, http://ecb.jrc.it

EUSES 2.0 (2003)
EUSES, the European Union System for the Evaluation of Substances, version 2.0. National Institute of Public Health and the Environment (RIVM), the Netherlands. Available via the European Chemicals Bureau, http://ecb.jrc.it

Recommended reference for EUSES 1.0 (see EUSES 1.0 report)

APPENDICES

APPENDIX 1. GENERAL OUTLINE STRUCTURE

This appendix shows the general outline structure. The study section was left out in this structure. The shown sections are independent of the use of the Hydrocarbon Block Method.

- Study identification
- Assessment type
- Defaults
    - Defaults identification
    - Release estimation
    - Characteristics of compartments
        - General
        - Surface water
        - Sediment
        - Soil
        - STP sludge
    - Degradation and transformation rates
    - Release estimation
    - Sewage treatment
        - General
        - Raw sewage
        - Primary settler
        - Activated sludge tank
        - Solids-liquid separator
    - Local distribution
        - Air and surface water
        - Soil
    - Regional and continental distribution
        - Configuration
        - Areas
            - Regional
            - Continental
            - Moderate
            - Arctic
            - Tropic
        - Temperature
        - Mass transfer
        - Air
            - General
            - Rain
            - Residence times
        - Water
            - Depth
            - Suspended solids
            - Residence times
        - Sediment
            - Depth
            - Suspended solids
            - Sedimentation rates
        - Soil
            - General
            - Depth
            - Erosion
    - Characteristics of plants, worms and cattle
        - Plants
        - Worms
        - Cattle