

# THE EXERGOECOLOGY PORTAL

<http://www.exergoecology.com>

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## What is it



- The exergoecology portal is the first scientific web space devoted to the novel discipline *Exergoecology*.
- *Exergoecology* is the application of the exergy analysis in the evaluation of natural fluxes and resources on earth.
- It is free and its aim is to disseminate the ideas of exergy and nat. resources to all interested audience.
- Developed by CIRCE (Spain) with collaboration of ITC (Poland).

<http://www.exergoecology.com>



# What does it contain



- Information about exergoecology:
  - Exergy as ecological indicator
  - The reference environment
  - Exergy costs
  - Thermoecological costs...
- An online chemical exergy calculator
- A bibliography database with all relevant references on exergy and natural resources.

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## The Exergoecology Portal

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**Navigation**

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**Welcome to the exergoecology Portal**




This portal is the first scientific web space devoted to the dissemination of the novel discipline "Exergoecology"

**What you will find...**

**Information about Exergoecology**  
Answers to what is Exergoecology, the Reference Environment, Thermoecological costs and Exergy Costs.

**Exergy calculator**  
The first online chemical exergy calculator. It calculates automatically the exergy of near 2000 inorganic substances just by entering the formula!

**Bibliography**  
All relevant bibliography dealing with natural resources and exergy ready to be downloaded as a ".bib" file for LaTeX users.



**News**

- Release of the exergoecology portal  
2005-11-28  
[More...](#)

**Upcoming Events**

- ECOS 2006  
Cappis Hotel, Aghia Pelagia, Crete, Greece,  
2006-07-12
- BIENNIAL INTERNATIONAL WORKSHOP: ADVANCES IN ENERGY STUDIES  
PORTO VENESE, SP, Italy,  
2006-09-12
- ASME 2006  
Chicago, Illinois,  
2006-11-05

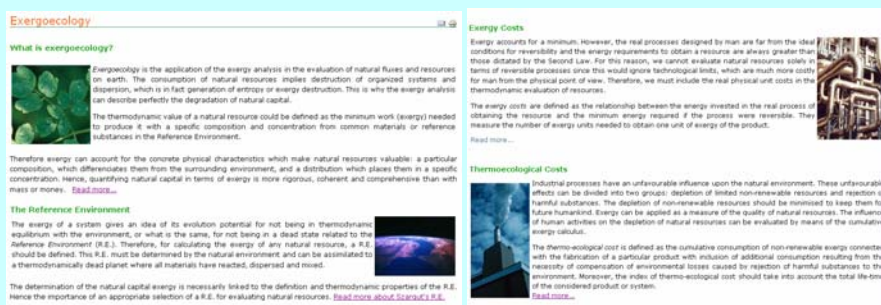
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Last modified 2006-04-24 04:18 PM

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## Information about exergoecology:

- Short descriptions of the theory related to exergy and resources.



The screenshot shows two columns of text from the Exergoecology website. The left column is titled "Exergoecology" and "What is exergoecology?". It explains that exergoecology is the application of exergy analysis to evaluate natural fluxes and resources on Earth, noting that natural resource consumption implies destruction and dispersion. It defines the thermodynamic value of a natural resource as the minimum work (exergy) needed to produce it with a specific composition and concentration from common materials or reference substances in the Reference Environment. It also discusses the Reference Environment (R.E.) and the importance of its selection for evaluating natural resources. The right column is titled "Energy Costs" and "Thermoeological Costs". It explains that energy costs are defined as the relationship between the energy invested in the real process of obtaining the resource and the minimum energy required if the process were reversible. It also discusses thermoeological costs, which include the depletion of non-renewable resources and the rejection of harmful substances.

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## Online chemical exergy calculator

- Based on the chemical exergies of the elements published by Szargut, Valero, Stanek and Valero D. 2005 in Trondheim.
- It calculates automatically the chemical exergy of more than 1000 inorganic substances. (It includes a Gibbs free energy database).
- If the substance is not included in the database, the program is still able to calculate its chemical energy. In this case, the user must introduce its own gibbs free energy.

<http://www.exergoecology.com>



# Online chemical exergy calculator



## Easy exergy calculator

This exergy calculator calculates automatically the chemical exergy of any chemical compound.

- See instructions for the exergy calculator [here](#).
- Go to the "[Advanced Exergy Calculator](#)" if you want to introduce your own Gibbs free energy value.

Results

Input Data

### Chemical formula

Enter the chemical formula, eg. for "Annite" write: KFe3AlSi3O10(OH)2

KFe3AlSi3O10(OH)2

Show all appearances

<http://www.exergoecology.com>



# Online chemical exergy calculator



## Easy exergy calculator

This exergy calculator calculates automatically the chemical exergy of any chemical compound.

- See instructions for the exergy calculator [here](#).
- Go to the "[Advanced Exergy Calculator](#)" if you want to introduce your own Gibbs free energy value.

Results

Exergy for formula KFe3AlSi3O10(OH)2 (KFe3AlSi3O10(OH)2 annite) is 316.23 kJ/mol, calculated with Gibbs -4799.72 kJ/mol from Faure 1991.

Input Data

### Chemical formula

Enter the chemical formula, eg. for "Annite" write: KFe3AlSi3O10(OH)2

Show all appearances

<http://www.exergoecology.com>



## Online chemical exergy calculator



### Advanced exergy calculator

See instructions for the exergy calculator here.

Results

Exergy for formula  $\text{KFe}_3\text{AlSi}_3\text{O}_{10}(\text{OH})_2$  is 316.23 kJ/mol.

[Back to easy Exergy Calculator](#)

Input Data

#### Chemical formula

Enter the chemical formula, eg. for "Annite" write:  $\text{KFe}_3\text{AlSi}_3\text{O}_{10}(\text{OH})_2$

#### Gibbs data

Enter the specific Gibbs free energy in kJ/mol, eg. -4852,4

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## Bibliography



- All relevant references dealing with natural resources and exergy.
- Most references include an abstract.
- They can be downloaded as ".bib" file for LaTeX users. (The whole database or selected references).

<http://www.exergoecology.com>



# Bibliography



## Bibliography

Find relevant references on natural resources and exergy:



Bibliography

↓ download Bibtex file

Please, help us to complete our database. Send us valuable references not yet included! [Mail](#)

**For your information:** [Bibtex](#) is the standard *LaTeX* bibliography reference and publication management data format. If you wish, you can download free reference management tools for *bibtex* and *MS Word* under the following links:

- [Jabref](#): import and export of bibtex files.
- [Wibtex](#): import and export of bibtex files and direct export to Microsoft Word, RTM and HTM file format.

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# Bibliography



This folder holds the following references to publications, sorted by year and author:

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[The value of the exergoecological life cycle assessment besides the LCA.](#)  
*Energy Conversion and Management* 43(9):1417-1424.
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[Available energy - Part I: Gibbs revisited.](#)  
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*The quarterly review of economics and finance* 42:417-421.
- Rivero, R (2002).  
[Application of the exergy concept in the petroleum refining and petrochemical industry.](#)  
*Energy Conversion and Management* 43(9):1199-1220(22).

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# Bibliography



Towards an international legal reference environment

J. Szarout, A. Valero, W. Stanek, and A. Valero D (2005)

**Towards an international legal reference environment**

In: Proceedings of ECOS 2005, edited by Signe Kjelstrup, Johan E. Hustad, Truls Gundersen, Audun Rosjorde and George Tsatsaronis. NTNU, Trondheim, Trondheim, Norway, pages 409-420.

**Abstract**  
The determination of the natural capital exergy is linked to the definition and thermodynamic properties of the Reference Environment (R.E.) used. Hence the importance of an appropriate selection of the R.E. The aim of this paper is to obtain, an agreement on the international reference environment for evaluating the natural resources on Earth. For this purpose, all the R.E. models published so far are systematically analyzed, the best suitable methodology for calculating the standard chemical exergy of the chemical elements is chosen and shown and the variables used in the chosen methodology are updated using new geochemical information and revisions done by other authors.

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# Additional contents

- Events
- News
- Relevant links
- Public discussion forum
- Members workspace: internal discussion forum, chat rooms...

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## Our hope...

- Our hope is that many more “exergoecology” practitioners join us, so that all relevant ideas and references appear in the portal.
- ...and of course that as many people as possible get to know the usefulness of that weird word!

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## If you want to be a member...

### Registration Form

#### Personal Details

##### Full Name

Enter full name, eg. John Smith.

##### User Name \*

Enter a user name, usually something like 'jsmith'. No spaces or special characters. Usernames and passwords are case sensitive, make sure the caps lock key is not enabled. This is the name used to log in.

##### E-mail \*

Enter an email address. This is necessary in case the password is lost. We respect your privacy, and will not give the address away to any third parties or expose it anywhere.

##### Password \*

Minimum 5 characters.

##### Confirm password \*

Re-enter the password. Make sure the passwords are identical.

Send a mail with the password

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