

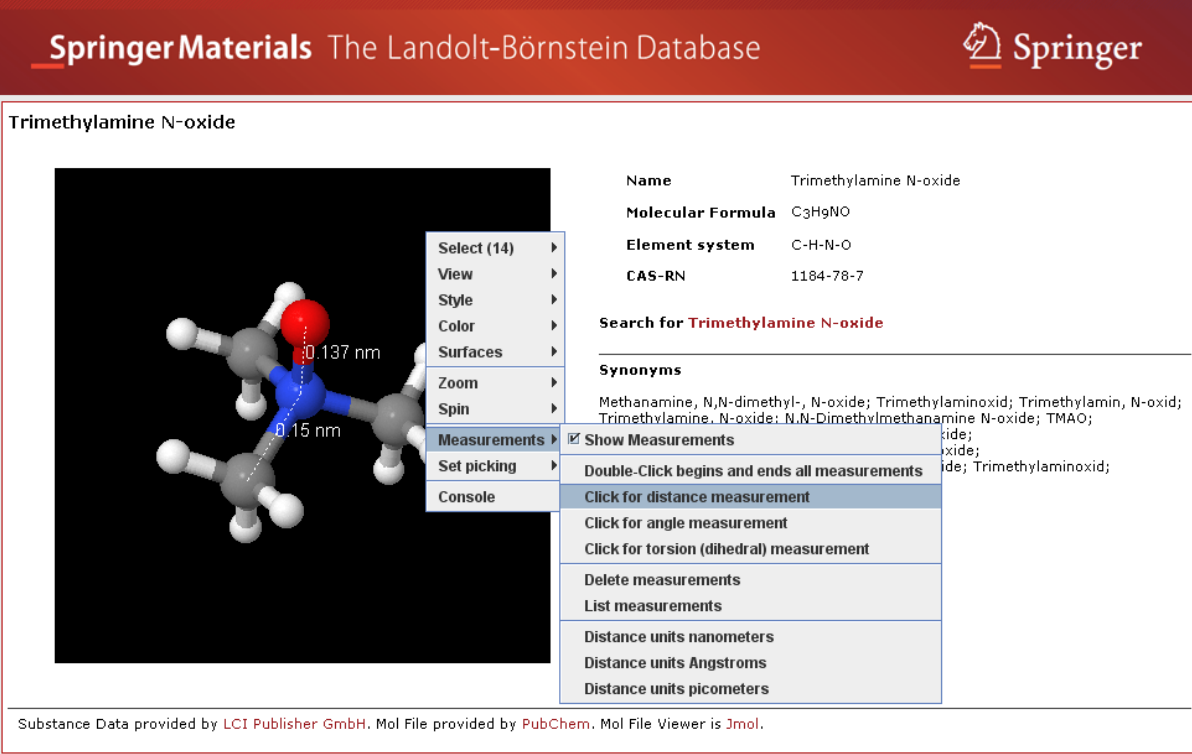
SpringerMaterials User Guide


- [3D Molecular Structures](#)
- [Advanced Search](#)
- [Bibliography](#)
- [Bookshelf Navigation](#)
- [Breadcrumb Trail](#)
- [Chemical Safety](#)
- [Citation Export](#)
- [Contents](#)
- [Context](#)
- [Feedback](#)
- [Fulltext Documents](#)
- [Home](#)
- [InfoPage](#)
- [Inorganic Solid Phases](#)
- [LB](#)
- [Metadata](#)
- [Navigation](#)
- [OpenSearch](#)
- [Periodic Table Search](#)
- [Query Operators](#)
- [Ranking](#)
- [REACH](#)
- [Refine](#)
- [Sample Searches](#)
- [Search](#)
- [Search Hit](#)
- [Search Plugin for Web Browsers](#)
- [Simple Search](#)
- [Speed Typing](#)
- [Subject Area Navigation](#)
- [Thermophysical Properties](#)
- [Your Query](#)
- [Wildcards](#)

3D Molecular Structures

Within the [Advanced Search](#) page the "3D Molecules" tab opens a [Speed Typing](#) dialogue to select substances by their names, molecular formulas or CAS registry numbers. After the selection of some substance by mouse-click, Jmol, an open-source Java viewer for chemical structures in 3D, opens and presents an interactive 3D model of that molecule.

Jmol allows for a wide variety of viewer configurations and options, which are accessible via the context menu (right-hand mouse-button). Our screenshot below shows the measurement of bond lengths as an example.



SpringerMaterials The Landolt-Börnstein Database 

Trimethylamine N-oxide

Name	Trimethylamine N-oxide
Molecular Formula	C ₃ H ₉ NO
Element system	C-H-N-O
CAS-RN	1184-78-7

Search for Trimethylamine N-oxide

Synonyms

- Methanamine, N,N-dimethyl-, N-oxide; Trimethylaminoxid; Trimethylamin, N-oxid;
- Trimethylamine, N-oxide: N,N-Dimethylmethanamine N-oxide; TMAO;
- Trimethylamine, N-oxide; Trimethylaminoxid; Trimethylaminoxid;

Substance Data provided by LCI Publisher GmbH. Mol File provided by PubChem. Mol File Viewer is Jmol.

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Please refer to the Jmol home page, jmol.sourceforge.net, for detailed descriptions of the Jmol project, manuals and tutorials, examples, etc.

[\[up\]](#)

Advanced Search

Allows specified searches for Substances, Molecular Formulas, Element Systems, CAS Registry Numbers and Properties in the relevant fields. Typing effort for query formulation is reduced by suggestions of terms ([Speed Typing](#)) showing available content.

Substances field: The speed-typing list also offers CAS Registry Number and Molecular Formula next to Substance Name in brackets. Element Systems can be typed with dash (the minus key) between the individual elements. The field supports case sensitive input; please use capital letters or spaces to mark the beginning of a new element symbol.

Your Query combines all search strings from the other fields of the Advanced Search page into a Boolean query that you can either submit as is or adapt to your needs before submitting it to the search engine.

SpringerMaterials The Landolt-Börnstein Database

Substances, Properties, ... 3D Molecules Bibliographic References Help Close

Your Query

Go Clear

Search for ...

Substances / Molecular Formulas / Element Systems / CAS Registry Numbers

Properties

Search in ...

- Particles, Nuclei and Atoms
- Molecules and Radicals
- Electronic Structure and Transport
- Magnetism
- Semiconductivity
- Superconductivity
- Crystallography
- Thermodynamics
- Multiphase Systems
- Advanced Materials
- Advanced Technologies
- Astro- and Geophysics

Search for ...

- ... all of these words
- ... one or more of these words
- ... exactly this phrase
- ... but none of these words

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[\[up\]](#)

Bibliography

SpringerMaterials contains over 1.2 million references to primary literature (over 8000 journals referenced).

A fulltext search performed on the reference collection will immediately deliver authors, editors, publications if referenced in the database.



Typing effort for query formulation is reduced by suggestions of terms ([Speed Typing](#)) showing available content. Any prefix of occurring words can filter the suggestions efficiently as shown in the example below.

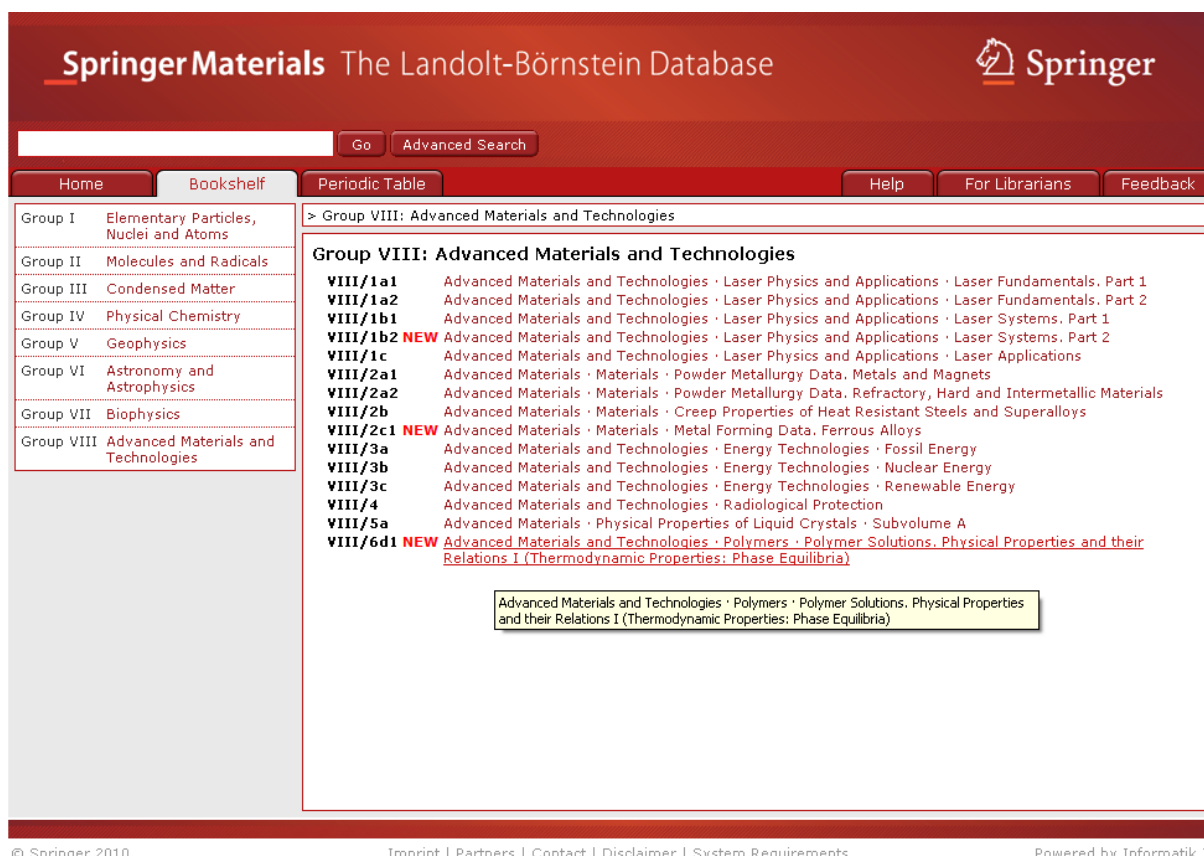
A click on one of the references leads to documents citing this literature.


The screenshot displays the SpringerMaterials interface. At the top, it reads "SpringerMaterials The Landolt-Börnstein Database" and the Springer logo. Below this, there are tabs for "Substances, Properties, ...", "3D Molecules", and "Bibliographic References". A search bar is active with the text "Meyer 2004". Below the search bar, a list of bibliographic references is shown, with the first entry highlighted: "Atzeni, S., Meyer-ter-Vehn, J.: Physics of Inertial Confinement Fusion and High Energy Density in Matter, Clarendon Press, Oxford (2004)". Other references include works by Keiser, McCutchan, Meyer, Porquet, Ressler, and Smith. The page also features navigation buttons like "previous" and "next", and a footer with copyright information: "© Springer 2010".

[up]

Bookshelf Navigation

Mirrors the organization of the [Landolt-Börnstein New Book Series](#) in Groups (I to VIII), Volumes and Subvolumes as on a bookshelf in the library. Click on one of the Groups to move to the content level, a list of available volumes will open in the main window. A click on the volume will show the Table of Contents as in the printed Landolt-Börnstein Volume. A PDF icon () shows that you have reached the content level; the adjacent "i"-icon () opens an [InfoPage](#).



SpringerMaterials The Landolt-Börnstein Database 

Go Advanced Search

Home Bookshelf **Periodic Table** Help For Librarians Feedback

> Group VIII: Advanced Materials and Technologies

Group VIII: Advanced Materials and Technologies

- VIII/1a1** [Advanced Materials and Technologies · Laser Physics and Applications · Laser Fundamentals. Part 1](#)
- VIII/1a2** [Advanced Materials and Technologies · Laser Physics and Applications · Laser Fundamentals. Part 2](#)
- VIII/1b1** [Advanced Materials and Technologies · Laser Physics and Applications · Laser Systems. Part 1](#)
- VIII/1b2 NEW** [Advanced Materials and Technologies · Laser Physics and Applications · Laser Systems. Part 2](#)
- VIII/1c** [Advanced Materials and Technologies · Laser Physics and Applications · Laser Applications](#)
- VIII/2a1** [Advanced Materials · Materials · Powder Metallurgy Data. Metals and Magnets](#)
- VIII/2a2** [Advanced Materials · Materials · Powder Metallurgy Data. Refractory, Hard and Intermetallic Materials](#)
- VIII/2b** [Advanced Materials · Materials · Creep Properties of Heat Resistant Steels and Superalloys](#)
- VIII/2c1 NEW** [Advanced Materials · Materials · Metal Forming Data. Ferrous Alloys](#)
- VIII/3a** [Advanced Materials and Technologies · Energy Technologies · Fossil Energy](#)
- VIII/3b** [Advanced Materials and Technologies · Energy Technologies · Nuclear Energy](#)
- VIII/3c** [Advanced Materials and Technologies · Energy Technologies · Renewable Energy](#)
- VIII/4** [Advanced Materials and Technologies · Radiological Protection](#)
- VIII/5a** [Advanced Materials · Physical Properties of Liquid Crystals · Subvolume A](#)
- VIII/6d1 NEW** [Advanced Materials and Technologies · Polymers · Polymer Solutions. Physical Properties and their Relations I \(Thermodynamic Properties: Phase Equilibria\)](#)

Advanced Materials and Technologies · Polymers · Polymer Solutions. Physical Properties and their Relations I (Thermodynamic Properties: Phase Equilibria)

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[\[up\]](#)

Breadcrumb Trail

Appears horizontally at the top of [InfoPages](#) and [Search Hits](#), is dynamic and provides a trail for the user to follow back to the starting or entry point. It is a click-able navigation and provides links back to each parent level of the current one. Here ">" serves as separator of hierarchy levels.

The screenshot shows the SpringerMaterials interface. At the top, it says "SpringerMaterials The Landolt-Börnstein Database" and the Springer logo. Below is a search bar and navigation tabs: Home, Bookshelf, Periodic Table, Help, For Librarians, Feedback. A breadcrumb trail is displayed: "> Advanced Technologies > Ferrous Alloys > Introduction and Definitions". The main content area is titled "Introduction and Definitions" and lists various steel properties with small icons next to them. One item, "Mechanical properties of steel after cold deformation", is highlighted with a tooltip.

Typical Breadcrumb Trail:

> [Advanced Technologies](#) > [Ferrous Alloys](#) > [Introduction and Definitions](#)

[\[up\]](#)




Chemical Safety

Safety Documents can be accessed by clicking "Chemical Safety" on the SpringerMaterials [homepage](#). It facilitates finding safety-relevant information on the substances included in SpringerMaterials. Substances can be specified by their proper names, molecular formulas, element systems, EINECS Numbers, or CAS-Registry Numbers.

The screenshot shows the SpringerMaterials website interface. At the top, it says "SpringerMaterials The Landolt-Börnstein Database" and the Springer logo. Below the header is a search bar with a "Go" button and an "Advanced Search" link. A navigation menu includes "Home", "Bookshelf", "Periodic Table", "Help", "For Librarians", and "Feedback". On the left side, there is a list of categories: "Particles, Nuclei and Atoms", "Molecules and Radicals", "Electronic Structure and Transport", "Magnetism", "Semiconductivity", "Superconductivity", "Crystallography", "Thermodynamics", "Multiphase Systems", "Advanced Materials", "Advanced Technologies", "Astro- and Geophysics", "Inorganic Solid Phases", "Thermophysical Properties", and "Chemical Safety". The main content area displays "Search in REACH, GHS, RoHS, WEEE" with a search bar and a "Go" button. Below the search bar, it lists "Substances / Molecular Formulas / Element Systems / CAS Registry Numbers" and provides definitions for REACH, GHS, RoHS, and WEEE. The footer contains copyright information: "© Springer 2010", "Imprint | Partners | Contact | Disclaimer | System Requirements", and "Powered by Informatik II".

Safety data are available from **REACH** (Registration, Evaluation, Authorization and Restriction of Chemicals), Hazard Information (Dangerous Substances Directive 67/548/EEC), GHS (Globally Harmonized System), RoHS (Restriction of Hazardous Substances), WEEE (Waste from Electrical and Electronic Equipment) and the ECHA (European Chemicals Agency) pre-registration.

Typical Safety Document:

SpringerMaterials The Landolt-Börnstein Database		Springer
European regulations regarding benzene (C₆H₆)		
Name	benzene	Formula: C ₆ H ₆
CAS-RN	71-43-2	Molecular Weight: 78.112 g/mol
EG-Index:	601-020-00-8 (2004/73/EC)	
EINECS:	200-753-7 (EINECS2)	
Hazard Information (Dangerous Substances Directive 67/548/EEC)		
Hazard symbols	 	2004/73/EC
R-Phrase	T Toxic F Highly flammable 45-46-11-36/38-48/23/24/25-65 R45 May cause cancer. R46 May cause heritable genetic damage. R11 Highly Flammable. R36/38 Irritating to eyes and skin. R48/23/24/25 Toxic: danger of serious damage to health by prolonged exposure through inhalation, in contact with skin and if swallowed. R65 Harmful: may cause lung damage if swallowed.	2004/73/EC
S-Phrase	S3-45 S53 Avoid exposure - obtain special instructions before use. S45 In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible).	2004/73/EC
GHS classification (Globally Harmonized System)		
Regulation on Classification, Labelling and Packaging of Substances and Mixtures (CLP)		
Signal Word	Danger	EC/1272/2008
Pictogram	  	
Hazard Statements	H225 Highly flammable liquid and vapour. H350 May cause cancer <state route of exposure if it is conclusively proven that no other routes of exposure cause the hazard> . H340 May cause genetic defects <state route of exposure if it is conclusively proven that no other routes of exposure cause the hazard> . H372 Causes damage to organs <or state all organs affected, if known> through prolonged or repeated exposure <state route of exposure if it is conclusively proven that no other routes of exposure cause the hazard> . H304 May be fatal if swallowed and enters airways. H319 Causes serious eye irritation. H315 Causes skin irritation.	
Precautionary Statements	P201 Obtain special instructions before use. P202 Do not handle until all safety precautions have been read and understood. P210 Keep away from heat/sparks/open flames/hot surfaces. - No smoking. P233 Keep container tightly closed. P240 Ground/bond container and receiving equipment. P241 Use explosion-proof electrical/ventilating/lighting/.../equipment. P242 Use only non-sparking tools. P243 Take precautionary measures against static discharge.	

[\[up\]](#)

Citation Export

Bibliographic data of documents can be exported in the RIS format (see, e.g., "[RIS \(file format\)](#)" at Wikipedia), to be used with Endnote and similar programs. Click on the link "RIS-Export" in the upper right part of the [InfoPages](#).

[\[up\]](#)

Contents

The world's largest resource for critically evaluated physical & chemical data comprises

- the contents of the Landolt-Börnstein New Book Series (> 400 volumes) plus its electronic supplementary material,
- the [LPF](#) Multinaries Edition - 2008 database on inorganic solid phases,
- a subset of the [DDBST](#) database – Dortmund Data Bank Software & Separation Technology on thermophysical properties,
- [Chemical Safety](#) documents such as [REACH](#) Data.

[\[up\]](#)

Context

Appears horizontally below a [Search Hit](#) and displays surroundings in which the searched string occurs. Indicated bold is whether the searched string (in blue) is found in [Metadata](#) or fulltext.

SpringerMaterials The Landolt-Börnstein Database

Search:

Home | Bookshelf | Periodic Table | Help | For Librarians | Feedback

Results 1 - 10 of 987 Documents previous 1 2 3 4 5 6 7 8 9 10 next

Inorganic Solid Phases

GaAs

Metadata - Substance: GaAs ... Metadata - Molecular Formula: GaAs ... Fulltext: GaAs, physical properties Element System: ... "New Photoluminescence Transition in **GaAs** Involving D- States", Phys. Rev. Lett. ... "Observation of a Cinnabar Phase in **GaAs** at High Pressure", Phys. Rev. Lett. 78 ... "THERMAL RECOVERY OF PHOTOCURRENT IN **GaAs** WITH EL2 DEFECTS AND RESIDUAL ...

Electronic Structure and Transport > Electronic Structure > Photoemission Spectroscopy > Band structure and core levels of tetrahedrally-bonded semiconductors

GaAs

Metadata - Substance: GaAs ... Galliumarsenid (GaAs) ... Gallium arsenide (GaAs) ... Gallium monoarsenide (GaAs) ... Fulltext: 2.1.15 GaAs (Gallium arsenide) Crystal structure: ... 40.47 (4) [80E1, 83K1, 84M1] Table 17. **GaAs**. Calculated energy eigenvalues and ... at 5 K [85W3]. Table 18. **GaAs**. Theoretical and experimental ... 4.70 5.07 5.28 5.76 6.67 6.74 Table 19. **GaAs**. Energies of selected ...

Semiconductivity > Semiconductors > Group IV Elements, IV-IV and III-V Compounds > Impurities and Defects > Gallium arsenide (GaAs)

GaAs, diffusion of Zn in GaAs

Metadata - Substance: GaAs ... Galliumarsenid (GaAs) ... gallium arsenide (GaAs) ... Gallium arsenide (GaAs) ... Gallium monoarsenide (GaAs) ... Metadata - Substrate: GaAs ... Fulltext: substance: gallium arsenide (GaAs) property: diffusion of Zn in GaAs By ... Forum 143-147 (1997) 1117. Fig. 1. **GaAs:Zn. Comparison of diffusion profiles ... and chemical diffusion of Zn in **GaAs** at T = 900oC. Curve 1: concentration ...**

Semiconductivity > Semiconductors > Group IV Elements, IV-IV and III-V Compounds > Impurities and Defects > Gallium arsenide (GaAs)

GaAs, oxygen and hydrogen in GaAs

Metadata - Substance: GaAs ... Galliumarsenid (GaAs) ... gallium arsenide (GaAs) ... Gallium arsenide (GaAs) ... Gallium monoarsenide (GaAs) ... Metadata - Substrate: GaAs ... Fulltext: substance: gallium arsenide (GaAs) property: oxygen and hydrogen in GaAs ... to produce semi-insulating epitaxial **GaAs. Two oxygen related defects have been observed in **GaAs**: interstitial O and off-centre ...**

Semiconductivity > Semiconductors > Group IV Elements, IV-IV and III-V Compounds > Lattice Properties > Gallium arsenide (GaAs)

GaAs, bulk modulus, Young's and torsional moduli

Metadata - Substance: GaAs ... Galliumarsenid (GaAs) ... Gallium arsenide (GaAs) ... Gallium monoarsenide (GaAs) ... Metadata - Substrate: GaAs ... Fulltext: substance: gallium arsenide (GaAs) property: bulk modulus, Young's and torsional moduli bulk modulus (GaAs-I, zincblende structure)) (in GPa) BS ... 98F]. For ordered GaPAs, GaInAs, and **GaAsSb structures, see [90W]. pressure ...**

Chemical Safety

European regulations regarding UPt3 / GaAs

Metadata - Substance: UPt3 / GaAs ...

Chemical Safety

European regulations regarding V3Si / GaAs

Metadata - Substance: V3Si / GaAs ...

Chemical Safety

European regulations regarding YSe / GaAs

Typical Context:

Electronic Structure and Transport > Electronic Structure > Photoemission Spectroscopy > Band structure and core levels of tetrahedrally-bonded semiconductors

GaAs

Metadata - Substance: GaAs ... Galliumarsenid (GaAs) ... Gallium arsenide (GaAs) ... Gallium monoarsenide (GaAs) ... Fulltext: 2.1.15 GaAs (Gallium arsenide) Crystal structure: ... 40.47 (4) [80E1, 83K1, 84M1] Table 17. **GaAs**. Calculated energy eigenvalues and ... at 5 K [85W3]. Table 18. **GaAs**. Theoretical and experimental ... 4.70 5.07 5.28 5.76 6.67 6.74 Table 19. **GaAs**. Energies of selected ...

[\[up\]](#)

Feedback

A click on the Feedback button activates your email program. Some brief information on your name, profession, affiliation and address is required for us to answer your query more quickly. "Referral" gives us information on your last search.

[\[up\]](#)

Fulltext Documents

Results shown as display-optimized PDF. [REACH](#) Data and [InfoPage](#) are offered in HTML, as well as results from the [LPF](#) and [DDBST](#) database.

[\[up\]](#)

Home

Click on SpringerMaterials Logo to return to the homepage.


[\[up\]](#)

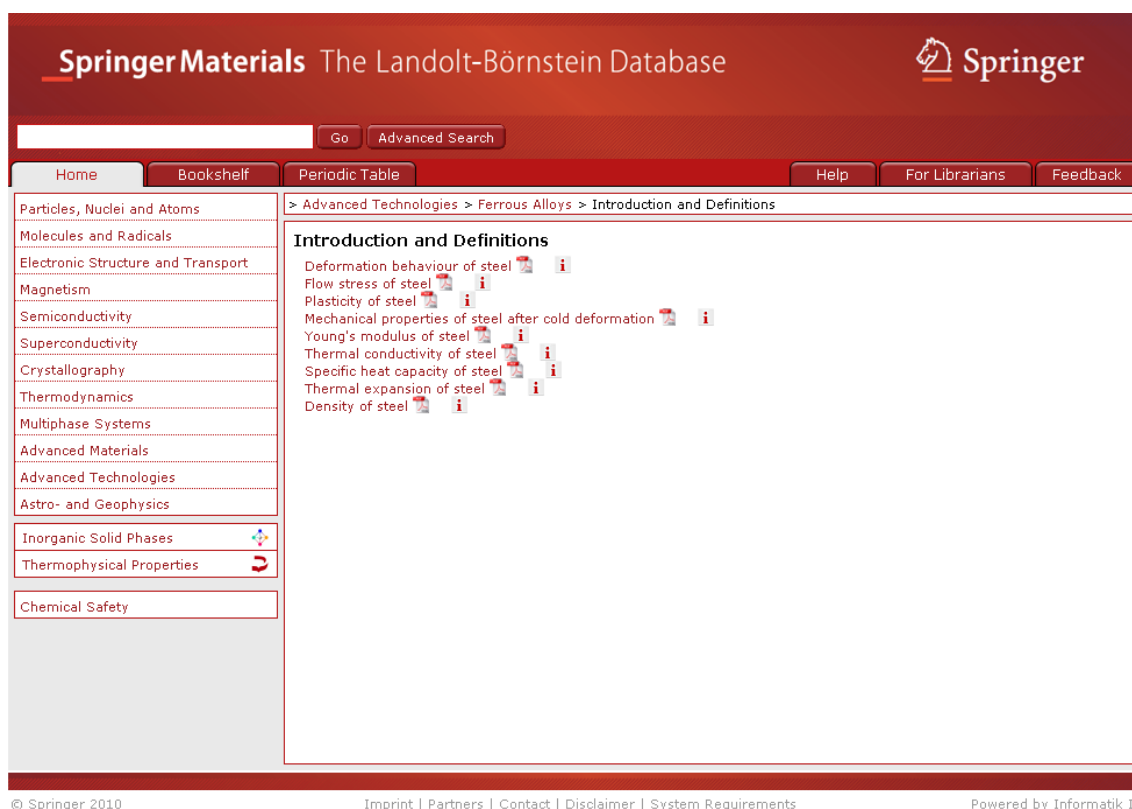
InfoPage

Provides bibliographic and [metadata](#) information for the corresponding document, and a thumbnail preview.

Bibliographic data include: How to cite the document, DOI, title, editor, author, publication date, and references. References are linked, where available, with the online versions of the original literature, usually via CrossRef or other bibliographic databases. Bibliographic data of the document can be exported in the [RIS format](#), to be used with Endnote and similar programs.

Metadata indicate "Chapter Concepts" covered by the document, such as keywords, element systems, substances and properties.

InfoPages are marked with an "i"-icon () in the list of documents:





















The screenshot shows the SpringerMaterials interface. The header includes the logo and 'The Landolt-Börnstein Database'. A search bar is present. The navigation menu includes 'Home', 'Bookshelf', 'Periodic Table', 'Help', 'For Librarians', and 'Feedback'. The main content area is titled 'Introduction and Definitions' and lists the following properties of steel, each with a thumbnail icon and an 'i' icon:

- Deformation behaviour of steel
- Flow stress of steel
- Plasticity of steel
- Mechanical properties of steel after cold deformation
- Young's modulus of steel
- Thermal conductivity of steel
- Specific heat capacity of steel
- Thermal expansion of steel
- Density of steel

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Introduction and Definitions

- Deformation behaviour of steel  
- Flow stress of steel  
- Plasticity of steel  
- Mechanical properties of steel after cold deformation  
- Young's modulus of steel  
- Thermal conductivity of steel  
- Specific heat capacity of steel  
- Thermal expansion of steel  
- Density of steel  

Typical InfoPage:

SpringerMaterials
Springer

Summary
Fulltext

Home > Advanced Technologies > Metallurgy > Metal Forming Data > Ferrous Alloys > Introduction and Definitions > 1 Deformation behaviour of steel

1 Deformation behaviour of steel

Download

Cite as: RIS-Export

Spittel, M., Spittel, T.: *1 Deformation behaviour of steel*. Warlimont, H. (ed.). SpringerMaterials - The Landolt-Börnstein Database (<http://www.springermaterials.com>). Springer-Verlag Berlin Heidelberg, 2009. DOI: 10.1007/978-3-540-44760-3_2

Source:

Title	1 Deformation behaviour of steel
In	Introduction and Definitions
Author	M. Spittel, T. Spittel
Affiliation	Fakultät für Werkstoffwissenschaft und Werkstofftechnologie - Institut für Metallformung, Technische Universität Bergakademie Freiberg, Akademiestraße 6, 09596 Freiberg, Germany
Part of	Landolt-Börnstein - Group VIII Advanced Materials and Technologies Numerical Data and Functional Relationships in Science and Technology
Volume	2C1: Metal Forming Data of Ferrous Alloys - deformation behaviour
Edited by	H. Warlimont
Chapter-DOI	10.1007/978-3-540-44760-3_2
Book-DOI	10.1007/978-3-540-44760-3 (Volume in Bookshelf)
Copyright	Springer-Verlag Berlin Heidelberg, 2009

Related Documents:

- Metal Forming Data of Ferrous Alloys - deformation behaviour
- Index of steel grades
- 2 Flow stress of steel
- 3 Plasticity of steel
- 4.1 Mechanical properties of steel after cold deformation
- 4.2 Young's modulus of steel
- 4.3 Thermal conductivity of steel
- 4.4 Specific heat capacity of steel
- 4.5 Thermal expansion of steel
- 4.6 Density of steel
- 5 Deformation parameters
- Steel symbol/number: S235JR/1.0038
- Steel symbol/number: S275JR/1.0128
- Steel symbol/number: C4D/1.0300

References:

[1.1] Tresca, H.: "Memoire sur l'écoulement des solides à de forte pressions", Acad. Sci. Paris 2 (1864) 59, p. 754-758.

[1.2] Lode, W.: Z. Physik 36 (1926), p. 913-939.

[1.3] v. Mises, R.: Nachr. Ges. Wiss. Göttingen, Math.-phys. Kl. (1913), p.582-597.

[up]

Inorganic Solid Phases (LPF – Linus Pauling File Database)

The "LPF Multinaries Edition – 2008" is the most comprehensive database on inorganic solid phases. All data are normalized and standardized according to the IUCr standards. It consists of three data collections: structure and diffraction data, phase diagrams, and physical properties.

The database can be browsed and is accessible through all search functions. A logo (🔍) next to a [Search Hit](#) indicates the source.


The screenshot displays the SpringerMaterials website interface. At the top, it reads "SpringerMaterials The Landolt-Börnstein Database" and features the Springer logo. Below the header is a search bar with a "Go" button and a link to "Advanced Search". A navigation menu includes "Home", "Bookshelf", "Periodic Table", "Help", "For Librarians", and "Feedback".

The main content area is titled "Search in Inorganic Solid Phases". It includes a search input field with a "Go" button and the text "Molecular Formulas / Element Systems / Properties". Below the search bar, it lists statistics: "7,500 Element Systems | 70,000 Phases | 100 Properties | 200,000 Literature Citations" and a link to "About Inorganic Solid Phases".

On the left side, there is a vertical menu with various categories. The "Inorganic Solid Phases" category is highlighted with a search icon (🔍). Other categories include "Particles, Nuclei and Atoms", "Molecules and Radicals", "Electronic Structure and Transport", "Magnetism", "Semiconductivity", "Superconductivity", "Crystallography", "Thermodynamics", "Multiphase Systems", "Advanced Materials", "Advanced Technologies", "Astro- and Geophysics", "Thermophysical Properties", and "Chemical Safety".










At the bottom of the page, there is a footer with the following text: "© Springer 2010", "Imprint | Partners | Contact | Disclaimer | System Requirements", and "Powered by Informatik II".

Typical list of data sheets:

SpringerMaterials The Landolt-Börnstein Database 

Go Advanced Search

HomeBookshelfPeriodic TableHelpFor LibrariansFeedback

<ul style="list-style-type: none"><li style="border-bottom: 1px dotted #ccc; padding: 2px 5px;">0 Particles, Nuclei and Atoms<li style="border-bottom: 1px dotted #ccc; padding: 2px 5px;">0 Molecules and Radicals<li style="border-bottom: 1px dotted #ccc; padding: 2px 5px;">0 Electronic Structure and Transport<li style="border-bottom: 1px dotted #ccc; padding: 2px 5px;">6 Magnetism<li style="border-bottom: 1px dotted #ccc; padding: 2px 5px;">0 Semiconductivity<li style="border-bottom: 1px dotted #ccc; padding: 2px 5px;">0 Superconductivity<li style="border-bottom: 1px dotted #ccc; padding: 2px 5px;">1 Crystallography<li style="border-bottom: 1px dotted #ccc; padding: 2px 5px;">0 Thermodynamics<li style="border-bottom: 1px dotted #ccc; padding: 2px 5px;">5 Multiphase Systems<li style="border-bottom: 1px dotted #ccc; padding: 2px 5px;">0 Advanced Materials<li style="border-bottom: 1px dotted #ccc; padding: 2px 5px;">0 Advanced Technologies<li style="border-bottom: 1px dotted #ccc; padding: 2px 5px;">0 Astro- and Geophysics<li style="border-bottom: 1px dotted #ccc; padding: 2px 5px; font-weight: bold;">9 Inorganic Solid Phases <li style="border-bottom: 1px dotted #ccc; padding: 2px 5px;">0 Thermophysical Properties <li style="border-bottom: 1px dotted #ccc; padding: 2px 5px;">0 Chemical Safety	<p style="text-align: right;">Results 1 - 9 of 9 Documents Expanded View Clear Refine</p> <p>Inorganic Solid Phases Al-Fe-Ti, ternary phase diagram, isothermal section </p> <p>Metadata - Element System: Al-Fe-Ti ... Fulltext: Al-Fe-Ti, ternary phase diagram, isothermal section Element System: Al-Fe-Ti Inorganic Solid Phases · phase diagrams ... Diagram C975736 from: Raghavan V.: "The Al-Fe-Ti (Aluminum-Iron-Titanium) System", Phase ... Diagram C975732 from: Raghavan V.: "The Al-Fe-Ti (Aluminum-Iron-Titanium) System", Phase ...</p> <p>Inorganic Solid Phases Al-Fe-Ti, ternary phase diagram, liquidus projection </p> <p>Metadata - Element System: Al-Fe-Ti ... Fulltext: Al-Fe-Ti, ternary phase diagram, liquidus projection Element System: Al-Fe-Ti Inorganic Solid Phases · phase diagrams ... Diagram C975722 from: Raghavan V.: "The Al-Fe-Ti (Aluminum-Iron-Titanium) System", Phase ...</p> <p>Inorganic Solid Phases Al-Fe-Ti, ternary phase diagram, vertical section </p> <p>Metadata - Element System: Al-Fe-Ti ... Fulltext: Al-Fe-Ti, ternary phase diagram, vertical section Element System: Al-Fe-Ti Inorganic Solid Phases · phase diagrams ...</p> <p>Inorganic Solid Phases TiFeAl, crystallographic data </p> <p>Metadata - Element System: Al-Fe-Ti ... Fulltext: crystallographic data Element System: Al-Fe-Ti Inorganic Solid Phases · ...</p> <p>Inorganic Solid Phases TiFe0.3Al2.7, crystallographic data </p> <p>Metadata - Element System: Al-Fe-Ti ... Fulltext: crystallographic data Element System: Al-Fe-Ti Inorganic Solid Phases · ...</p> <p>Inorganic Solid Phases TiFe2Al, crystallographic data </p> <p>Metadata - Element System: Al-Fe-Ti ... Fulltext: crystallographic data Element System: Al-Fe-Ti Inorganic Solid Phases · ...</p> <p>Inorganic Solid Phases TiFe4Al12, crystallographic data </p> <p>Metadata - Element System: Al-Fe-Ti ... Fulltext: crystallographic data Element System: Al-Fe-Ti Inorganic Solid Phases · ...</p>
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[\[up\]](#)

LB (Landolt-Börnstein New Book Series)

The latest edition of this brand and the first one to be published in the English language. Started as an open series in 1961, it comprises to date > 400 volumes. To see how it is organized click [Bookshelf](#).

[\[up\]](#)

Metadata

SpringerMaterials provides metadata for each document extracted in an editorial process: Substance, Element System, CAS Registry Number, Properties, Keywords, Main Subject, Secondary Subjects, and Bibliographic Information.

[\[up\]](#)

Navigation

SpringerMaterials offers two different views of the same content: By [Subject Areas](#) and, for aficionados of the Landolt-Börnstein New Book Series, the [Bookshelf Navigation](#).

[\[up\]](#)

OpenSearch

Search results can be returned as an OpenSearch compliant RSS feed. The OpenSearch description document is located at <http://www.springermaterials.com/content/search.xml>. In order to integrate SpringerMaterials search results into your federate search, check the documentation of your search engine.

Further information about OpenSearch can be found on <http://www.opensearch.org>.

[\[up\]](#)

Periodic Table Search

Supports a search by element systems of substances and materials.

You can select elements by clicking on the symbols of the Periodic Table. Chosen elements are highlighted by an orange frame and also displayed in the central Your Selection string.

You can deselect elements by clicking on them a second time either in the Periodic Table or in the Your Selection string.

Chosen elements are highlighted by an orange frame; elements not available for further combinations are grayed-out in the Periodic Table.

Speed-typing: A list of available element systems opens. Chosen elements are marked red, black elements show further possible combinations.

Click on a possible combination from the list, available documents are shown.

To add any other search criteria, click [Refine](#).

SpringerMaterials The Landolt-Börnstein Database

Go Advanced Search

Home Bookshelf **Periodic Table** Help For Librarians Feedback

Search for Element Systems

Select elements by clicking on the symbols.
Deselect elements by clicking a second time.

Your Selection
Al-Fe-Ti

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[up]

Query Operators

- **AND**
The *AND* operator is the default operator. If your query consists of a sequence of words separated by spaces, each space symbol is interpreted as an *AND*; e.g. *optical stark effect* is the same as *optical AND stark AND effect*. This query will find all documents where all three words optical, stark, and effect appear somewhere as substrings in the text.
- **OR**
OR is often useful for combining closely related terms like synonyms in one query; e.g. *methylurea OR 598-50-5* will find all documents which contain at least one of the two strings *methylurea* or its CAS-Registry-Number *598-50-5*.
- **Double quotes for phrase search**
Double quotes around a sequence of words in a query only yields those documents containing the words in exactly this order; e.g. "*optical stark effect*" will produce only those documents containing this phrase somewhere in the text.
- **BUT_NOT**
BUT_NOT is used to specify documents by some relevant keyword but excluding some known context from the result-set; e.g. "*urea*" *BUT_NOT* *optical* selects documents that contain the exact match of *urea* but only if it does not also contain the substring *optical*.
- **{ and } for nested queries**
{ and } helps to handle several valid simple queries in one single and powerful nested query; e.g. {"*Ruthenium*" *OR* "*7440-18-8*"} *AND* "*magnetic flux*" combines the simple query "*Ruthenium*" or alternatively "*7440-18-8*" with the required phrase "*magnetic flux*".

[\[up\]](#)

Ranking

The ranking of the displayed documents is performed according to a scoring algorithm. Relevance is calculated by location and frequency of, and conformity with the search term within the document. A hit in the [Metadata](#) is scored higher than one occurring in the fulltext. Exact matches are preferred over substring matches.

[\[up\]](#)

REACH

The [Chemical Safety Search](#) finds REACH-relevant (Registration, Evaluation, Authorization and Restriction of CHemicals) information on the substances (alternatively CAS-Registry Numbers, Molecular Formula) included in SpringerMaterials. Also described, where applicable, are the GHS (Globally Harmonized System), RoHS (Restriction of Hazardous Substances), and WEEE (Waste from Electrical and Electronic Equipment).

[\[up\]](#)

Refine

To select or deselect subject areas, or to add any other search criteria, click Refine. You will be automatically directed to the [Advanced Search](#), where you can narrow down your results with more specialized queries; then click Go.

[\[up\]](#)


Sample Searches

Simple Search

The Simple Search field is found in the center of the SpringerMaterials homepage and replicated in the field below the SpringerMaterials logo. Typing in a query is the quickest way to find data; however, to get a more precise result, refinement is possible in a second step.

In the example we are interested in all data available about "*formic acid*". Typing in the first characters opens a list of suggestions (via "[Speed Typing](#)") which shows the available content. A click on the first term and pushing the "Go" button executes the query. A list of available documents is shown.

In the default view of search results, each document found by the query is presented by indicating the path to the document in the systematic hierarchy via the [breadcrumb trail](#), the title of the document, and the context of the search terms within the document:

SpringerMaterials The Landolt-Börnstein Database 

Search: "formic acid"

Home Bookshelf Periodic Table Help For Librarians Feedback

0 Particles, Nuclei and Atoms
 127 Molecules and Radicals
 26 Electronic Structure and Transport
 17 Magnetism
 0 Semiconductivity
 0 Superconductivity
 18 Crystallography
 324 Thermodynamics
 0 Multiphase Systems
 3 Advanced Materials
 1 Advanced Technologies
 0 Astro- and Geophysics

0 Inorganic Solid Phases
 31 Thermophysical Properties

20 Chemical Safety

Results 1 - 10 of 567 Documents previous 1 2 3 4 5 6 7 8 9 10 next

Molecules and Radicals > Molecular Structure > Organic Molecules > One or Two Carbon Atoms > Element systems C-H2-...
CH2O2 Formic acid

Metadata - Substance: formic acid ... Formic acid ... CH2O2 (formic acid) ... Fulltext: 228 CH2O2 Formic acid Cs MW r a) C-H C=O C-O O-H & 1.0981(16) ...

Thermophysical Properties
Formic acid

Metadata - Substance: Formic acid ... Fulltext: Formic acid Thermophysical Data in the Dortmund ... Number Name 1 CH2O2 46.026 64-18-6 Formic acid List of Available Properties Pure ...

Thermodynamics > Mechanical Properties > Surface Tension > Pure Liquids and Binary Liquid Mixtures
Data on pure liquids

Metadata - Substance: formic acid ... CH2O2 (formic acid) ... formic acid ethyl ester ... formic acid hexyl ester ... Fulltext: 30.86 30.81 26.99 24.87 2002 C11H18O2 formic acid trans-3,7-dimethyl-oct-2,6-dien-1-yl ...

Thermodynamics > Thermodynamical Properties > Organic Compounds > Vapor Pressure and Antoine Constants > Oxygen Containing Organic Compounds
compounds C2...C8

Metadata - Substance: formic acid ... CH2O2 (formic acid) ... benzoyl formic acid ...

Thermodynamics > Mechanical Properties > Viscosity > Organometallic Liquids and Binary Liquid Mixtures > Mixtures of organic compounds
Part 1


Metadata - Substance: formic acid ... CH2O2 (formic acid) ... formic acid ethyl ester ... Formic acid, ethyl ester ... C3H6O2 (formic acid ethyl ester) ... Fulltext: 0.1669 0.1944 0.2394 498 CH2O2 (1) formic acid *) 64-18-6 CH3NO (2) formamide 75-12-7 ... 3.196 3.286 3.314 3.341 499 CH2O2 (1) formic acid *) 64-18-6 CH4O (2) methanol 67-56-1 T/ ...

Electronic Structure and Transport > Dielectricity > Pure Liquids and Binary Liquid Mixtures: Dielectric Constants
Pure Liquids: References

Metadata - Substance: formic acid ... CH2O2 (formic acid) ... formic acid ethyl ester ...

Thermodynamics > Electrical Properties > Electrochemistry: Thermodynamics and Kinetics > Electrode potentials
Table: Metal electrode potentials in nonaqueous electrolyte systems

A more compact list not showing the context can be obtained by clicking "Compact View":

SpringerMaterials The Landolt-Börnstein Database 

Search: "formic acid"

Home Bookshelf Periodic Table Help For Librarians Feedback

0 Particles, Nuclei and Atoms
 127 Molecules and Radicals
 26 Electronic Structure and Transport
 17 Magnetism
 0 Semiconductivity
 0 Superconductivity
 18 Crystallography
 324 Thermodynamics
 0 Multiphase Systems
 3 Advanced Materials
 1 Advanced Technologies
 0 Astro- and Geophysics

0 Inorganic Solid Phases
 31 Thermophysical Properties

20 Chemical Safety

Results 1 - 10 of 567 Documents previous 1 2 3 4 5 6 7 8 9 10 next

Molecules and Radicals > Molecular Structure > Organic Molecules > One or Two Carbon Atoms > Element systems C-H2-...
CH2O2 Formic acid

Thermophysical Properties
Formic acid

Thermodynamics > Mechanical Properties > Surface Tension > Pure Liquids and Binary Liquid Mixtures
Data on pure liquids

Thermodynamics > Thermodynamical Properties > Organic Compounds > Vapor Pressure and Antoine Constants > Oxygen Containing Organic Compounds
compounds C2...C8

Thermodynamics > Mechanical Properties > Viscosity > Organometallic Liquids and Binary Liquid Mixtures > Mixtures of organic compounds
Part 1

Electronic Structure and Transport > Dielectricity > Pure Liquids and Binary Liquid Mixtures: Dielectric Constants
Pure Liquids: References

Thermodynamics > Electrical Properties > Electrochemistry: Thermodynamics and Kinetics > Electrode potentials
Table: Metal electrode potentials in nonaqueous electrolyte systems

Molecules and Radicals > Molecules, General Topics > Molecular Acoustics > Sound absorption and dispersion in gases and liquids > Chemically homogeneous liquids
The frequency-independent portions of sound absorption in organic liquids

Electronic Structure and Transport > Optics > Refractive Indices > Inorganic, Organometallic, and Organo-nonmetallic Liquids, and Binary Liquid Mixtures
Mixtures: Data

Molecules and Radicals > NMR Spectroscopy > Oxygen-17: Shifts and Coupling Constants > Compounds with C-O double bonds (C=O)

The "Hierarchical View" of the query results locates search hits within the [Subject Areas](#) and [the Navigation Tree](#). This allows an easy location of search hits within a specific context:

The screenshot displays the SpringerMaterials interface. At the top, the search bar contains 'formic acid' with 'Go' and 'Advanced Search' buttons. Below the search bar is a navigation menu with 'Home', 'Bookshelf', 'Periodic Table', 'Help', 'For Librarians', and 'Feedback'. The main content area is divided into two columns. The left column is a 'Navigation Tree' listing subject areas with counts: Particles, Nuclei and Atoms (0); Molecules and Radicals (198); Electronic Structure and Transport (95); Magnetism (35); Semiconductivity (0); Superconductivity (0); Crystallography (28); Thermodynamics (476); Multiphase Systems (0); Advanced Materials (5); Advanced Technologies (1); Astro- and Geophysics (0); Inorganic Solid Phases (1); Thermophysical Properties (31); and Chemical Safety (26). The right column shows 'Search Results' for 'formic acid'. It lists hierarchical categories and their counts: Molecules and Radicals (198) including Molecules, General Topics (11), Molecular Constants (75), Molecular Structure (40), NMR Spectroscopy (19), NQR Spectroscopy (32), Radicals, Magnetism (13), and Radicals, Reaction Kinetics (8); Electronic Structure and Transport (95) including Dielectricity (44) and Optics (51); Magnetism (35) including Diamagnetic Susceptibilities (24) and Coordination and Organometallic Compounds (11); Crystallography (28) including Crystal Structure (22), Atomic Defects (1), and Solid Surfaces (5); Thermodynamics (476) including Thermodynamical Properties (282), Mechanical Properties (190), and Electrical Properties (4); Advanced Materials (5) including Nucleic Acids (1) and Proteins (4); and Advanced Technologies (1) including Energy (1). A 'Hierarchical View' button is active, with 'Expanded View' and 'Compact View' buttons also visible. 'Clear' and 'Refine' buttons are located at the top right of the search results area. The footer contains copyright information for Springer 2010, a list of links (Imprint, Partners, Contact, Disclaimer, System Requirements), and the text 'Powered by Informatik II'.

Clicking "Refine" opens the "Advanced Search" form.

Advanced Search

The Advanced Search allows specific searches for chemical substances and their properties. Chemical substances can be specified by their proper names, molecular formulas, element systems, or CAS registry numbers.

The screenshot displays the SpringerMaterials Advanced Search interface. At the top, it reads "SpringerMaterials The Landolt-Börnstein Database" and the Springer logo. Below the header, there are tabs for "Substances, Properties, ...", "3D Molecules", and "Bibliographic References", along with "Help" and "Close" buttons. The main search area is titled "Your Query" and contains a search box with the query: `"formic acid" {"surface tension"}`. Below this, there are "Go" and "Clear" buttons. The "Search for ..." section is set to "Substances / Molecular Formulas / Element Systems / CAS Registry Numbers". The "Properties" section contains the text `"surface tension"`, with a dropdown menu showing suggestions: "surface twist", "surface tension" (highlighted), and "surface layer thickness". The "Search in" section is set to "surface phase transition", with a dropdown menu showing suggestions: "surface phase transition", "nuclear surface thickness", "transient surface temperature", and "surface termination dependence". Below the "Search in" section, there is a list of categories with checkboxes: Particle, Molecular, Electrochemical, Magnetic, Semiconductor, Superconductivity, Crystallography, Thermodynamics, Multiphase Systems, Advanced Materials, Advanced Technologies, Astro- and Geophysics, Inorganic Solid Phases, Thermophysical Properties, and Chemical Safety. The background shows search results for "formic acid", including a table of "Metal electrode potentials in nonaqueous electrolyte systems" and a section on "The frequency-independent portions of sound absorption in organic liquids".

In the example the user is searching for the surface tension of formic acid. Thus, *"formic acid"* was typed in the substance search field and the appropriate entry was chosen from the list of suggestions. Then the first characters of the property *"surface tension"* were typed and the corresponding hit was chosen from the list of suggestions. "Your Query" combines all search strings from the other fields of the advanced search page into a Boolean query that can be submitted as is or adapted if necessary. Pushing the "Go" button executes the query.

The following screenshot shows the list of available documents:

The screenshot shows the SpringerMaterials interface. At the top, the search bar contains the query "formic acid" {"surface tension"}. Below the search bar are navigation buttons: Home, Bookshelf, Periodic Table, Help, For Librarians, and Feedback. A left sidebar lists various scientific categories, with "Thermophysical Properties" selected and highlighted in red. The main content area displays search results for "Formic acid". It shows a list of 6 documents, with the first hit expanded. The expanded view shows the title "Thermophysical Properties" and "Formic acid". Below this, it lists metadata: "Substance: Formic acid", "Property: Surface Tension", and "Fulltext: Formic acid Thermophysical Data in the Dortmund ...". The document content includes a breadcrumb trail: "Thermodynamics > Mechanical Properties > Surface Tension > Pure Liquids and Binary Liquid Mixtures". It also features a "Data on pure liquids" section with a PDF icon and an information icon. The text describes the surface tension of formic acid and its mixtures with water, providing a table of values at T = 293.15 K. The second hit in the list is titled "Surface tension of formic acid" and also includes a PDF icon and an information icon. The third hit is titled "Surface tension of the mixture (1) water; (2) formic acid" and includes a PDF icon and an information icon. The fourth hit is titled "Surface tension of formic acid" and includes a PDF icon and an information icon. The fifth hit is titled "Surface tension of formic acid" and includes a PDF icon and an information icon. The sixth hit is titled "Index of Substances" and includes a PDF icon and an information icon.

The document of the first hit contains data on the surface tension of formic acid from the database on [Thermophysical Properties](#). The second hit provides a PDF document from a [Landolt-Börnstein](#) compilation on surface tension covering formic acid. Further hits locate data about mixtures of formic acid with other liquids, e.g. with water.

A combined substance/property search is a typical use case for SpringerMaterials.

The Advanced Search page is opened by clicking on the "Advanced Search" button or by clicking the "Refine" button in the list of hits, e.g., as a second step after a simple search.

Besides the search for chemical substances and properties, the "Advanced Search" allows you to search for a specific word, for exact phrases, and to exclude documents containing specific words from the search results. Moreover, search can be restricted to one or more subject areas.

Bibliography Search

The "Bibliography Search" is part of the Advanced Search feature. SpringerMaterials contains over 1 million references to primary literature (over 8000 journals are referenced).


The screenshot shows the SpringerMaterials interface for a Bibliography Search. The search bar contains the text "Williams". Below the search bar, a list of search results is displayed, including authors, journal titles, and publication years. The results list includes:

- A.K. Pradhan and J. Peng, in Analysis of Emission Lines, Ed. R.E. Williams and M. Livio, Cambridge University Press (1995).
- Aaronson, M. in: Infrared Astronomy, Int. Astron. Union Symp. 96 (Wynn-Williams, C.E., Cruikshank, D.P., eds.), Reidel, Dordrecht (1981) p. 297.
- Ababio, B.D., McElroy, P.J., Salt, B., Williamson, A.G.: Chem. Eng. J. (Lausanne) 47 (1991) 113.
- Ababio, B.D., McElroy, P.J., Williamson, A.G.: Fluid Phase Equilibria 95 (1994) 329.
- Abegg, R., Hutton, J.D., Williams-Norton, M.E.: Nuclear Physics A 303 (1978) 121.
- Abel, E.W., Bhargava, S.K., Bhatti, M.M., Kite, K., Mazid, M.A., Orrell, K.G., Sik, V., Williams, B.L., Hursthouse, M.B., Abdul Malik, K.M.: J. Chem. Soc., Dalton Trans. (1982) 2065.
- Abrahams, S.C., Bernstein, J.L., Sherwood, R.C., Wernick, J.H., Williams, H.J.: J. Phys. Chem. Solids 25 (1964) 1069.
- Abrahams, S.C., Williams, H.J.: J. Chem. Phys. 39 (1963) 2923-2933.
- Adam, W., Sahin, C., Sendelbach, J., Walter, H., Chen, G.-F., Williams, F.: J. Am. Chem. Soc. 116 (1994) 2576.
- Adam, W., Walter, H., Chen, G.-F., Williams, F.: J. Am. Chem. Soc. 114 (1992) 3007.
- Addinall, R., Murray, R., Newman, R.C., Wagner, J., Parker, S.D., Williams, R.L., Droopad, R., De Oliveira, A.G., Ferguson, I., Stradling, R.A.: Semicond. Sci. Technol. 6 (1991) 147.
- Addinall, R., Murray, R., Newman, R.C., Wagner, J., Parker, S.D., Williams, R.L., Droopad, R., De Oliveira, A.G., Ferguson, I., Stradling, R.A.: Semiconductor Science and Technology 6 (1991) 147.
- Adkins, H., Williams, J.L.R.: J. Org. Chem. 17 (1952) 980.
- Allen, E.A., B.J. Brisdon, D.A. Edwards, G.W.A. Fowles and R.G. Williams: Journal of the Chemical Society 1963, 4649.

The interface also shows navigation buttons like "previous", "Page 1 of 119", and "next >".

A fulltext search performed on the reference collection will immediately deliver authors, editors, and publications referenced in the database. Typing effort for query formulation is reduced by suggestions of terms ("[Speed Typing](#)") showing available content. In this example we typed in "*williams*" and get suggestions of possible references where the substring "williams" occurs. A click on one of the references leads to documents citing this literature.

Chemical Safety Document Search

SpringerMaterials The Landolt-Börnstein Database 

Go Advanced Search

Home Bookshelf Periodic Table Help For Librarians Feedback

Particles, Nuclei and Atoms
Molecules and Radicals
Electronic Structure and Transport
Magnetism
Semiconductivity
Superconductivity
Crystallography
Thermodynamics
Multiphase Systems
Advanced Materials
Advanced Technologies
Astro- and Geophysics

Inorganic Solid Phases
Thermophysical Properties

Chemical Safety

Search in

REACH, GHS, RoHS, WEEE


Substances / Molecular Formulas / Element Systems / CAS Registry Numbers

Go

REACH - Registration, Evaluation, Authorization and Restriction of Chemicals
GHS - Globally Harmonized System
RoHS - Restriction of Hazardous Substances
WEEE - Waste from Electrical and Electronic Equipment

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The "Chemical Safety Document Search" can be accessed by clicking "Chemical Safety" on the SpringerMaterials home page. It facilitates finding **safety-relevant information** on the substances included in SpringerMaterials. Substances can be specified by their proper names, molecular formulas, element systems, or CAS-Registry Numbers.

SpringerMaterials The Landolt-Börnstein Database 

Go Advanced Search

Home Bookshelf Periodic Table Help For Librarians Feedback

Particles, Nuclei and Atoms
Molecules and Radicals
Electronic Structure and Transport
Magnetism
Semiconductivity
Superconductivity
Crystallography
Thermodynamics
Multiphase Systems
Advanced Materials
Advanced Technologies
Astro- and Geophysics

Inorganic Solid Phases
Thermophysical Properties

Chemical Safety

Search in

REACH, GHS, RoHS, WEEE

Substances / Molecular Formulas / Element Systems / CAS Registry Numbers

benzene Go

benzene (C₆H₆)
benzene-d₆ (C₆D₆)
Benzene-1,4-d₂ (C₆H₄D₂)
benzenemethanol (C₇H₈O)
Cyanato-benzene (C₇H₅NO)
benzene selenol (C₆H₆Se)
butoxy-benzene (C₁₀H₁₄O)
dimethyl-benzene (C₈H₁₀)
propoxy-benzene (C₉H₁₂O)
Benzene, hexaiodo- (C₆I₆)

< previous Page 1 of 67 next >

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"Chemical Safety Document Search" finds data from REACH (Registration, Evaluation, Authorization and Restriction of Chemicals). If available, data about Hazard Information (Dangerous Substances Directive 67/548/EEC), GHS (Globally Harmonized System), RoHS (Restriction of Hazardous Substances), WEEE (Waste from Electrical and Electronic Equipment) and on the European Chemicals Agency (ECHA) pre-registration are also given.

In the example the user is interested in REACH-relevant data of *benzene*. A click on the first entry in the list of suggestions opens the corresponding data sheet:

SpringerMaterials The Landolt-Börnstein Database		Springer
European regulations regarding benzene (C₆H₆)		
Name	benzene	Formula: C ₆ H ₆
CAS-RN	71-43-2	Molecular Weight: 78.112 g/mol
EG-Index:	601-020-00-8 (2004/73/EC)	
EINECS:	200-753-7 (EINECS2)	
Hazard Information (Dangerous Substances Directive 67/548/EEC)		
Hazard symbols	 	2004/73/EC
R-Phrase	T Toxic F Highly flammable 45-46-11-36/38-48/23/24/25-65 R45 May cause cancer. R46 May cause heritable genetic damage. R11 Highly Flammable. R36/38 Irritating to eyes and skin. R48/23/24/25 Toxic: danger of serious damage to health by prolonged exposure through inhalation, in contact with skin and if swallowed. R65 Harmful: may cause lung damage if swallowed.	2004/73/EC
S-Phrase	S3-45 S53 Avoid exposure - obtain special instructions before use. S45 In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible).	2004/73/EC
GHS classification (Globally Harmonized System)		
Regulation on Classification, Labelling and Packaging of Substances and Mixtures (CLP)		
Signal Word	Danger	EC/1272/2008
Pictogram	  	
Hazard Statements	H225 Highly flammable liquid and vapour. H350 May cause cancer <state route of exposure if it is conclusively proven that no other routes of exposure cause the hazard>. H340 May cause genetic defects <state route of exposure if it is conclusively proven that no other routes of exposure cause the hazard>. H372 Causes damage to organs <or state all organs affected, if known> through prolonged or repeated exposure <state route of exposure if it is conclusively proven that no other routes of exposure cause the hazard>. H304 May be fatal if swallowed and enters airways. H319 Causes serious eye irritation. H315 Causes skin irritation.	
Precautionary Statements	P201 Obtain special instructions before use. P202 Do not handle until all safety precautions have been read and understood. P210 Keep away from heat/sparks/open flames/hot surfaces. - No smoking. P233 Keep container tightly closed. P240 Ground/bond container and receiving equipment. P241 Use explosion-proof electrical/ventilating/lighting/.../equipment. P242 Use only non-sparking tools. P243 Take precautionary measures against static discharge.	

Periodic Table Search

A click on the button "Periodic Table" opens a window showing the Periodic Table of Chemical Elements.

The screenshot displays the SpringerMaterials interface for searching chemical elements. At the top, it says "SpringerMaterials The Landolt-Börnstein Database" and features the Springer logo. Below this is a search bar with a "Go" button and an "Advanced Search" button. A navigation bar contains buttons for "Home", "Bookshelf", "Periodic Table" (which is active), "Help", "For Librarians", and "Feedback".

The main content area is titled "Search for Element Systems". It shows a periodic table with elements color-coded by groups. Elements H, D, and T are highlighted in red. Elements Li, Be, Na, and Mg are highlighted in green. Elements Al, Si, P, S, Cl, and Ar are highlighted in blue. Elements K, Ca, Sc, Ti, V, Cr, Mn, Fe, Co, Ni, Cu, Zn, Ga, Ge, As, Se, Br, and Kr are highlighted in purple. Elements Rb, Sr, Y, Zr, Nb, Mo, Tc, Ru, Rh, Pd, Ag, Cd, In, Sn, Sb, Te, I, and Xe are highlighted in light blue. Elements Cs, Ba, Hf, Ta, W, Re, Os, Ir, Pt, Au, Hg, Tl, Pb, Bi, Po, At, and Rn are highlighted in dark blue. Elements Fr, Ra, Rf, Db, Sg, Bh, Hs, Mt, Ds, Rg, Cn, Nh, Fl, Lv, Ts, and Og are highlighted in very dark blue.

Below the periodic table is a "Your Selection" box, which is currently empty. Text instructions state: "Select elements by clicking on the symbols. Deselect elements by clicking a second time." The interface also includes a "No elements selected" message on the left and navigation arrows at the bottom.

At the bottom of the page, there is a footer with the text: "© Springer 2010", "Imprint | Partners | Contact | Disclaimer | System Requirements", and "Powered by Informatik II".

It supports a search by element systems of substances and materials. Elements can be selected by clicking on the symbols of the Periodic Table. The elements chosen can be deselected by clicking on them a second time either in the Periodic Table or in the "Your Selection" string.

SpringerMaterials The Landolt-Börnstein Database

Go Advanced Search

Home Bookshelf **Periodic Table** Help For Librarians Feedback

Al-Cr-Fe
 Al-Co-Cr-Fe
 Al-Cr-Cu-Fe
 Al-Cr-Fe-Ge
 Al-Cr-Fe-N
 Al-Cr-Fe-Ni
 Al-Cr-Fe-O
 Al-Cr-Fe-S
 Al-Cr-Cu-Fe-O
 Al-Cr-Cu-Fe-Si
 Al-Cr-Fe-Ge-Mn
 Al-Cr-Fe-H-O
 Al-Cr-Fe-Mg-O
 Al-Cr-Fe-Mn-O
 Al-Cr-Fe-Ni-O
 Al-Cr-Fe-O-Si
 Al-Cr-Fe-O-Sr
 Al-Cr-Fe-O-Ti
 Al-Cr-Fe-O-Zn
 Al-B-Co-Cr-Fe-Nd
 Al-Ca-Cr-Fe-O-Si
 Al-Co-Cr-Fe-O-Zn
 Al-Cr-Fe-Ga-Ni-O
 Al-Cr-Fe-Mg-Ni-O
 Al-Cr-Fe-Mg-O-Si
 Al-Cr-Fe-Mg-O-Ti
 Al-Cr-Fe-Mg-O-Zn
 Al-Cr-Fe-Nb-Ni-Ti

< previous Page 1 of 6 next >

Search for Element Systems

Select elements by clicking on the symbols.
 Deselect elements by clicking a second time.


Your Selection
 Al-Cr-Fe

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Elements chosen are highlighted by an orange frame and are also displayed in the central "Your Selection" string. Elements not available for further combinations are grayed-out in the Periodic Table.

After choosing an element a list of available element systems opens on the left hand. Chosen elements are marked red, black elements show further possible combinations. Click on a possible combination from the list and a list of available documents is shown in a new window.

In this example, we have chosen aluminum (*Al*), chromium (*Cr*) and iron (*Fe*). By clicking the first entry in the list of available element systems ("*Al-Cr-Fe*"), a list of documents containing this element system appears. Search hits are from Landolt-Börnstein documents and the database on Inorganic Solid Phases, as indicated by the icons.

SpringerMaterials The Landolt-Börnstein Database 



"Al-Cr-Fe"



Home Bookshelf Periodic Table Help For Librarians Feedback


0 Particles, Nuclei and Atoms
0 Molecules and Radicals
1 Electronic Structure and Transport
15 Magnetism
0 Semiconductivity
0 Superconductivity
3 Crystallography
0 Thermodynamics
6 Multiphase Systems
0 Advanced Materials
0 Advanced Technologies
0 Astro- and Geophysics


9 Inorganic Solid Phases
0 Thermophysical Properties
0 Chemical Safety


Results 1 - 10 of 34 Documents previous 1 2 3 4 next


Multiphase Systems > Ternary Alloys > Phase Diagrams, Crystallography and Thermodynamics > Light Metal Systems > Aluminum (Al-X-Y) Ternary Alloys
Al-Cr-Fe  
Metadata - Substance: Al-Cr-Fe ... **Al-Cr-Fe** (Aluminium-Chromium-Iron) ... **Al-Cr-Fe** (Aluminium - Chromium - Iron) ... **Metadata - Element System:** Al-Cr-Fe ... **Fulltext:** Al-Cr-Fe Aluminium - Chromium - Iron Gautam ... Sidorko Literature Data Although the Al-Cr-Fe system has undergone many investigations, the Al-Cr-Fe equilibrium diagram has not been ...

Multiphase Systems > Ternary Alloys > Phase Diagrams, Crystallography and Thermodynamics > Iron Systems > Selected Systems from Al-B-Fe to C-Co-Fe
Aluminium-Chromium-Iron  
Metadata - Substance: Al-Cr-Fe ... **Al-Cr-Fe** (Aluminium - Chromium - Iron) ... **Metadata - Element System:** Al-Cr-Fe ... **Fulltext:** interest in the phase relations in the Al-Cr-Fe system, particularly as alloys of this ... also an interesting peculiarity of the Al-Cr-Fe system. Although this system has undergone many investigations, the Al-Cr-Fe equilibrium diagram has not been ...

Inorganic Solid Phases
Al-Cr-Fe, ternary phase diagram, isothermal section 
Metadata - Element System: Al-Cr-Fe ... **Fulltext:** Al-Cr-Fe, ternary phase diagram, isothermal section Element System: Al-Cr-Fe Inorganic Solid Phases · phase diagrams ... from: Raynor G.V., Rivlin V.G.: "Al-Cr-Fe", Phase Equilibria Iron Ternary Alloys, ... from: Raynor G.V., Rivlin V.G.: "Al-Cr-Fe", Phase Equilibria Iron Ternary Alloys, ...

Inorganic Solid Phases
Al-Cr-Fe, ternary phase diagram, liquidus projection 
Metadata - Element System: Al-Cr-Fe ... **Fulltext:** Al-Cr-Fe, ternary phase diagram, liquidus projection Element System: Al-Cr-Fe Inorganic Solid Phases · phase diagrams ... from: Raynor G.V., Rivlin V.G.: "Al-Cr-Fe", Phase Equilibria Iron Ternary Alloys, ... for the Al-Rich Portion of the Al-Cr-Fe Phase Diagram", Z. Metallkd. 78 (1987) ...

Inorganic Solid Phases
Al-Cr-Fe, ternary phase diagram, vertical section 
Metadata - Element System: Al-Cr-Fe ... **Fulltext:** Al-Cr-Fe, ternary phase diagram, vertical section Element System: Al-Cr-Fe Inorganic Solid Phases · phase diagrams ... from: Raynor G.V., Rivlin V.G.: "Al-Cr-Fe", Phase Equilibria Iron Ternary Alloys, ... from: Raynor G.V., Rivlin V.G.: "Al-Cr-Fe", Phase Equilibria Iron Ternary Alloys, ...

Inorganic Solid Phases
Cr18Fe15Al120, crystallographic data 

To add any other search criteria, a click on the "Refine" button (top right) opens the Advanced Search window:

The screenshot displays the SpringerMaterials search interface. At the top, the header reads "SpringerMaterials The Landolt-Börnstein Database" and the Springer logo is on the right. Below the header, there are tabs for "Substances, Properties, ...", "3D Molecules", and "Bibliographic References". A search bar contains the query "Al-Cr-Fe" with "Go" and "Clear" buttons. Below the search bar, a dropdown menu is open under the heading "Search for ...". The menu lists various search categories: "Substances / Molecular Formulas / Element Systems / CAS Registry Numbers", "Properties", and "Search in". Under "Properties", the text "magnetiz" is entered, and a list of suggestions is shown, with "magnetization (magnetic moment per unit volume)" highlighted. The "Search in" section lists various material classes with checkboxes, including Particles, Molecules, Electrons, Magnets, Semiconductors, Superconductors, Crystals, Thermodynamics, Multiphase, Advanced, Astrophysics, Inorganic, and Thermodynamics. The background shows a search result page for "Al-Cr-Fe" with a list of documents and a "Cr18Fe15Al120, crystallographic data" entry.

In this case we are interested in the magnetization of the element system Al-Cr-Fe. Typing in the first characters into the Properties search field opens the speed-typing list, and the entry "magnetization" can be chosen. The complete search phrase will then be shown in the field "Your Query" which can be edited or left as it is. Pushing the "Go" button will lead to the list of available documents.

[\[up\]](#)

Search

SpringerMaterials offers [Simple Search](#), the [Periodic Table Search](#) and the [Advanced Search](#).

A query is case insensitive and substring matching in its basic form. E.g., *crystal* as a query produces the same results as *Crystal* or *CRYSTAL* and also returns hits in *crystalline*, *nanocrystalline*, etc.

Typing effort for query formulation is reduced by suggestions of terms ([Speed Typing](#)) showing available content.

You can either type your query, then click "Go" or select a term from the speed-typing list and click "Go". While the suggestions are specific for the input fields, e.g., Molecular Formulas are supplied, the selection of any of the suggestions is not required; in fact any string can be placed in any of the fields to perform a search.

[\[up\]](#)

Search Hit

Each Search Hit shows the following three lines from top to bottom: [Breadcrumb Trail](#), [Fulltext Document](#), [Context](#) ([LB](#), [LPF](#), [DDBST](#), or [Chemical Safety](#)).

Thermophysical Properties

Methanol 

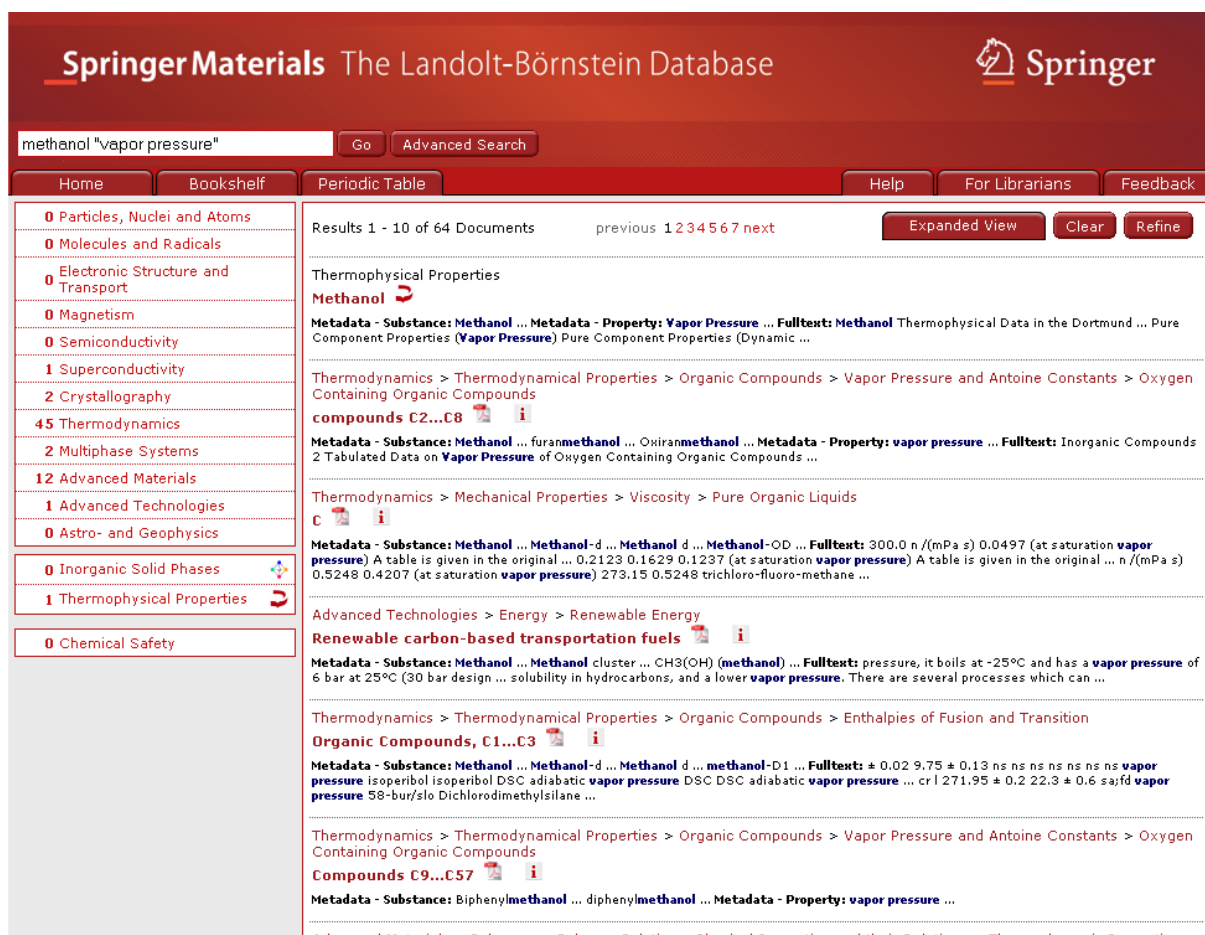
Metadata - Substance: Methanol ... Metadata - Property: Vapor Pressure ... Fulltext: Methanol Thermophysical Data in the Dortmund ... Pure Component Properties (**Vapor Pressure**) Pure Component Properties (Dynamic ...

Thermodynamics > Thermodynamical Properties > Organic Compounds > Vapor Pressure and Antoine Constants > Oxygen Containing Organic Compounds

compounds C2...C8  












Metadata - Substance: Methanol ... furanmethanol ... Oxiranmethanol ... Metadata - Property: vapor pressure ... Fulltext: Inorganic Compounds 2 Tabulated Data on **Vapor Pressure** of Oxygen Containing Organic Compounds ...

Typical Search Hits (search for *methanol "vapor pressure"*, hits in "[Thermophysical Properties](#)" and [Landolt-Börnstein](#) data):



The screenshot shows the SpringerMaterials interface. At the top, the search bar contains "methanol 'vapor pressure'" and the results are displayed in a list. The left sidebar shows a navigation menu with categories like "Particles, Nuclei and Atoms", "Molecules and Radicals", "Electronic Structure and Transport", "Magnetism", "Semiconductivity", "Superconductivity", "Crystallography", "Thermodynamics" (highlighted with 45 results), "Multiphase Systems", "Advanced Materials", "Advanced Technologies", "Astro- and Geophysics", "Inorganic Solid Phases", "Thermophysical Properties", and "Chemical Safety".

The main content area shows the following search results:

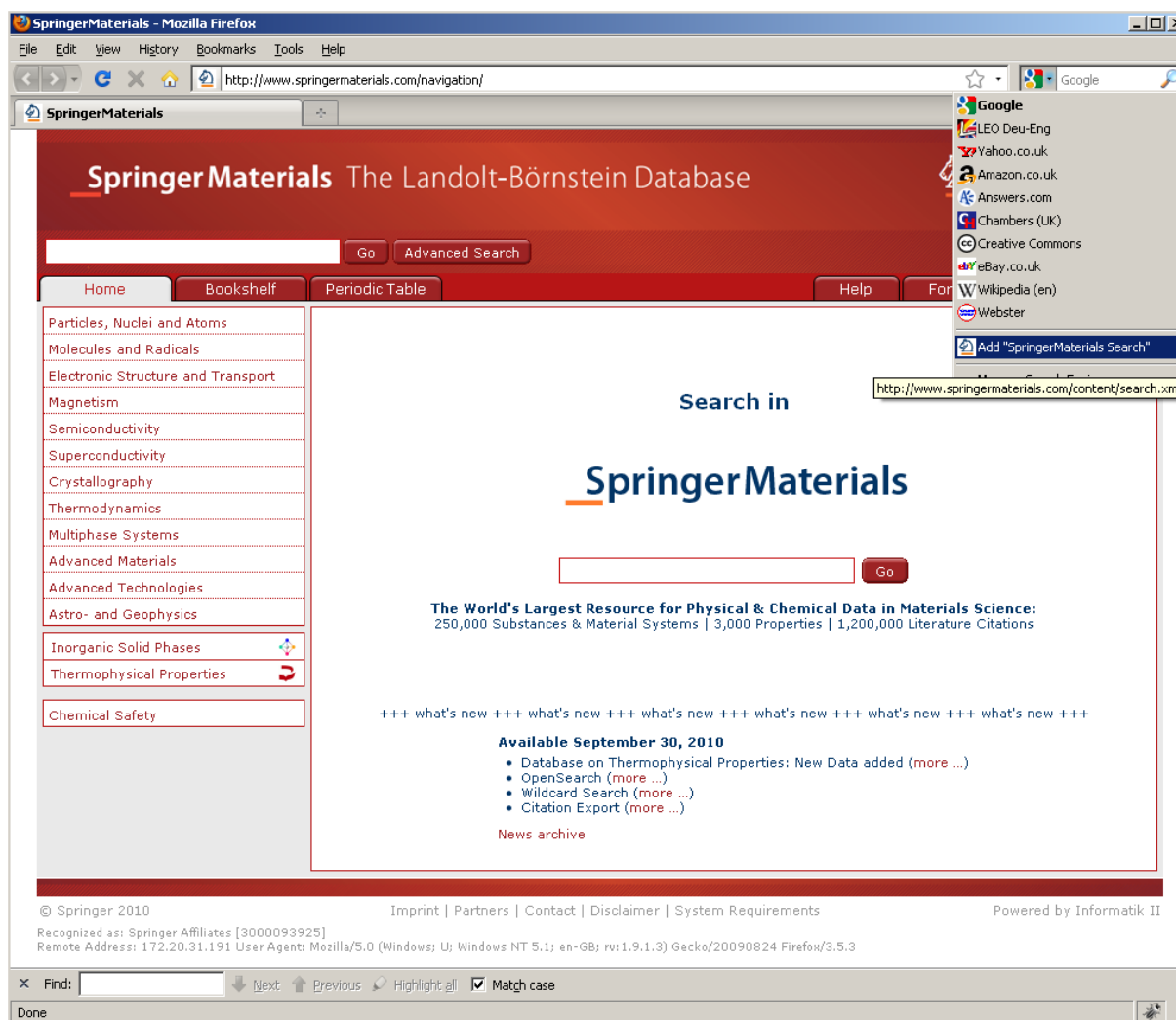
- Thermophysical Properties**
Methanol 
Metadata - Substance: Methanol ... Metadata - Property: Vapor Pressure ... Fulltext: Methanol Thermophysical Data in the Dortmund ... Pure Component Properties (**Vapor Pressure**) Pure Component Properties (Dynamic ...
- Thermodynamics > Thermodynamical Properties > Organic Compounds > Vapor Pressure and Antoine Constants > Oxygen Containing Organic Compounds
compounds C2...C8  
Metadata - Substance: Methanol ... furanmethanol ... Oxiranmethanol ... Metadata - Property: vapor pressure ... Fulltext: Inorganic Compounds 2 Tabulated Data on **Vapor Pressure** of Oxygen Containing Organic Compounds ...
- Thermodynamics > Mechanical Properties > Viscosity > Pure Organic Liquids
C  
Metadata - Substance: Methanol ... Methanol-d ... Methanol d ... Methanol-OD ... Fulltext: 300.0 n/(mPa s) 0.0497 (at saturation vapor pressure) A table is given in the original ... 0.2123 0.1629 0.1237 (at saturation **vapor pressure**) A table is given in the original ... n/(mPa s) 0.5248 0.4207 (at saturation **vapor pressure**) 273.15 0.5248 trichloro-fluoro-methane ...
- Advanced Technologies > Energy > Renewable Energy
Renewable carbon-based transportation fuels  
Metadata - Substance: Methanol ... Methanol cluster ... CH3(OH) (methanol) ... Fulltext: pressure, it boils at -25°C and has a vapor pressure of 6 bar at 25°C (30 bar design ... solubility in hydrocarbons, and a lower vapor pressure. There are several processes which can ...
- Thermodynamics > Thermodynamical Properties > Organic Compounds > Enthalpies of Fusion and Transition
Organic Compounds, C1...C3  
Metadata - Substance: Methanol ... Methanol-d ... Methanol d ... methanol-D1 ... Fulltext: ± 0.02 9.75 ± 0.13 ns ns ns ns ns ns vapor pressure isoperibol isoperibol DSC adiabatic vapor pressure DSC DSC adiabatic vapor pressure ... cr l 271.95 ± 0.2 22.3 ± 0.6 sajfd vapor pressure 58-bur/slo Dichlorodimethylsilane ...
- Thermodynamics > Thermodynamical Properties > Organic Compounds > Vapor Pressure and Antoine Constants > Oxygen Containing Organic Compounds
Compounds C9...C57  
Metadata - Substance: Biphenylmethanol ... diphenylmethanol ... Metadata - Property: vapor pressure ...

[up]

Search Plugin for Web Browsers

As an additional feature, SpringerMaterials offers a search plugin for web browsers which support [OpenSearch](#) plugins, such as Internet Explorer (as of version 7), Firefox (as of version 2) and Chrome.

With Internet Explorer and Firefox, you can add the plugin to the browser search form by selecting "Add SpringerMaterials Search" from the top-right drop-down menu. Keep in mind that this works only while you are visiting www.springermaterials.com:



After this installation, you can use the browser search form to type queries which will then be sent directly to SpringerMaterials:

The screenshot shows a Mozilla Firefox browser window displaying the SpringerMaterials website. The search term 'benzene' is entered in the search bar, and the results page shows 9912 documents. The left sidebar lists various categories such as 'Particles, Nuclei and Atoms', 'Molecules and Radicals', 'Electronic Structure and Transport', etc. The main content area displays search results for 'benzene', including metadata, fulltext, and thermophysical properties.

SpringerMaterials - Mozilla Firefox
http://www.springermaterials.com/qs/search?query=benzene

SpringerMaterials The Landolt-Börnstein Database Springer

benzene Go Advanced Search

Home Bookshelf Periodic Table Help For Librarians Feedback

4 Particles, Nuclei and Atoms
2283 Molecules and Radicals
830 Electronic Structure and Transport
712 Magnetism
33 Semiconductivity
1 Superconductivity
174 Crystallography
4478 Thermodynamics
1 Multiphase Systems
240 Advanced Materials
9 Advanced Technologies
4 Astro- and Geophysics

28 Inorganic Solid Phases
93 Thermophysical Properties

1022 Chemical Safety

Results 1 - 10 of 9912 Documents previous 1 2 3 4 5 6 7 8 9 10 next Compact View Clear Refine

Molecules and Radicals > Molecular Structure > Organic Molecules > Five or More Carbon Atoms > Element systems
C6-H6-...

C6H6, Benzene

Metadata - Substance: benzene ... benzene I ... benzene II ... C6H6 (benzene) ... Nitration benzene ... Benzene anhydrous ...
Fulltext: Molecules 2227 C6H6 Benzene D6h IR re C-H C-C & ... Phys. 75 (1981) 4231. MW 1,2-Benzene-d2, 1,3-Benzene-d2 ... spectra of 1,2- and 1,3-benzene-d2 have been measured. a) ... from the center of the benzene ring. Oldani, M., Widmer, R., ...

Thermophysical Properties
Benzene

Metadata - Substance: benzene ... **Metadata - Molecular Formula:** Benzene Thermophysical Data in the ... **Fulltext:** Name 1 C6H6 78.114 71-43-2 Benzene List of Available Properties ...

Thermodynamics > Mechanical Properties > Surface Tension > Pure Liquids and Binary Liquid Mixtures
Data on pure liquids

Metadata - Substance: benzene ... Bibenzene ... Benzene I ... Azabenzene ... Benzene II ... Benzene d6 ... benzene-d6 ... Oxybenzene ... Benzene-d6 ... D6-Benzene ... iodobenzene ... Amylbenzene ...

Thermodynamics > Mechanical Properties > Organic Compounds: Densities > Aromatic Hydrocarbons
Alkenylbenzenes CnH(2n-6): C6...C10

Metadata - Substance: benzene ... Benzene I ... Benzene II ... Amylbenzene ... octylbenzene ... hexylbenzene ... butylbenzene ... decylbenzene ... nonylbenzene ... ethylbenzene ... butylbenzene ... pentylbenzene ...

Thermodynamics > Thermodynamical Properties > Organic Compounds > Enthalpies of Fusion and Transition
Organic Compounds, C6

Metadata - Substance: benzene ... Benzene I ... Benzene II ... Benzene d6 ... benzene-d6 ... Benzene-d6 ... D6-Benzene ... Oxybenzene ... (D6)benzene ... iodobenzene ... chlorobenzene ... bromobenzene ...

Electronic Structure and Transport > Optics > Refractive Indices > Organic Liquids
Pure Organic Liquids, Part 2

Metadata - Substance: benzene ... Benzene I ... Azabenzene ... Oxybenzene ... Benzene II ... Benzene d6 ... benzene-d6 ... Benzene-d6 ... D6-Benzene ... (D6)benzene ... iodobenzene ... aminobenzene ...

Find: Next Previous Highlight:all Match case

Done

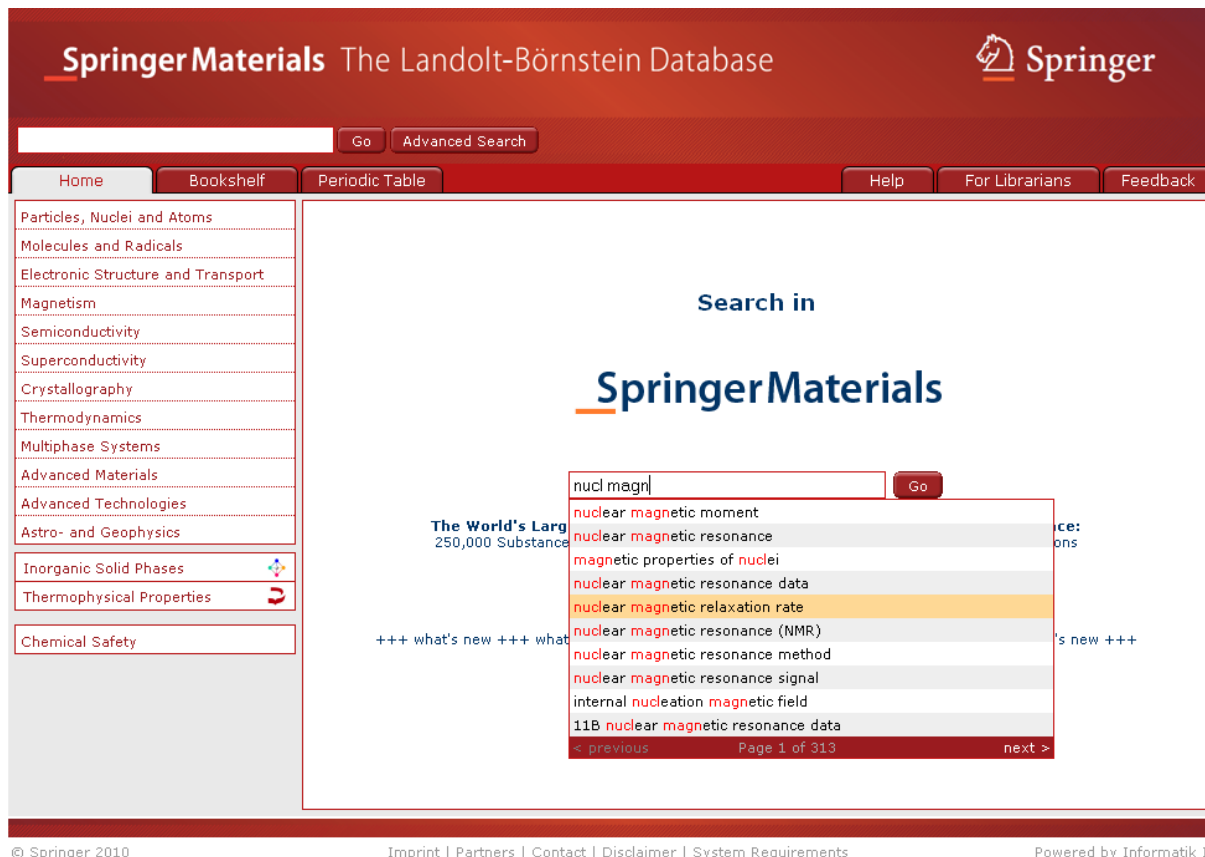
If you are using another system, please check the documentation of your browser to see if it supports search plugins according to the OpenSearch 1.1 specification, and how to install them.

[up]

Simple Search

The Simple Search field is found in the center of the SpringerMaterials [homepage](#) and replicated as such in a field below the SpringerMaterials logo.

Typing effort for query formulation is reduced by suggestions of terms ([Speed Typing](#)) showing available content.



The screenshot displays the SpringerMaterials website interface. At the top, the logo 'SpringerMaterials The Landolt-Börnstein Database' and the Springer logo are visible. Below the logo is a search bar with a 'Go' button and an 'Advanced Search' link. A navigation menu includes 'Home', 'Bookshelf', 'Periodic Table', 'Help', 'For Librarians', and 'Feedback'. On the left, a sidebar lists various scientific categories such as 'Particles, Nuclei and Atoms', 'Molecules and Radicals', 'Electronic Structure and Transport', 'Magnetism', 'Semiconductivity', 'Superconductivity', 'Crystallography', 'Thermodynamics', 'Multiphase Systems', 'Advanced Materials', 'Advanced Technologies', 'Astro- and Geophysics', 'Inorganic Solid Phases', 'Thermophysical Properties', and 'Chemical Safety'. The main content area features a large search field with the text 'Search in SpringerMaterials'. Below the search field, a dropdown menu shows suggestions for the query 'nucl magn', including 'nuclear magnetic moment', 'nuclear magnetic resonance', 'magnetic properties of nuclei', 'nuclear magnetic resonance data', 'nuclear magnetic relaxation rate', 'nuclear magnetic resonance (NMR)', 'nuclear magnetic resonance method', 'nuclear magnetic resonance signal', 'internal nucleation magnetic field', and '11B nuclear magnetic resonance data'. The dropdown menu also includes 'previous' and 'next' navigation options. At the bottom of the page, there is a footer with copyright information: '© Springer 2010', 'Imprint | Partners | Contact | Disclaimer | System Requirements', and 'Powered by Informatik II'.

You can either type your query, then click "Go" or select a term from the speed-typing list and click "Go".

To edit your current query again or to add further search criteria, click "[Refine](#)".

[\[up\]](#)

Speed Typing

Reduces typing effort for query formulation by suggesting terms and showing available content upfront. The more you type, the shorter the list of suggestions gets.

SpringerMaterials The Landolt-Börnstein Database

Substances, Properties, ... 3D Molecules Bibliographic References Help Close

Your Query

Search for ...

Substances / Molecular Formulas / Element Systems / CAS Registry Numbers

Search in

- Particle: sulphurous acid (7782-99-2; H₂O₃S)
- Molecule: Sublimed sulphur (7704-34-9; 9035-99-8; S)
- Electron: sulphur trioxide (7446-11-9; O₃S)
- Magnetic: sulphuric diamide (7803-58-9; H₄N₂O₂S)
- Semiconductor: Flowers of sulphur (7704-34-9; 9035-99-8; S)
- Crystal: Sulphuryl fluoride (2699-79-8; F₂O₂S)
- Thermodynamic: sulphur (IV) oxide (7446-09-5; O₂S)
- Multiphase: sulphur (VI) oxide (7446-11-9; O₃S)
- Advanced: sulphur dichloride (10545-99-0; Cl₂S)
- Astrophysics: sulphuryl chloride (7791-25-5; Cl₂O₂S)
- Inorganic: sulphuric [2H₂]acid (13813-19-9; D₂O₄S)
- Thermodynamic: < previous Page 1 of 5 next >
- Chemical Safety



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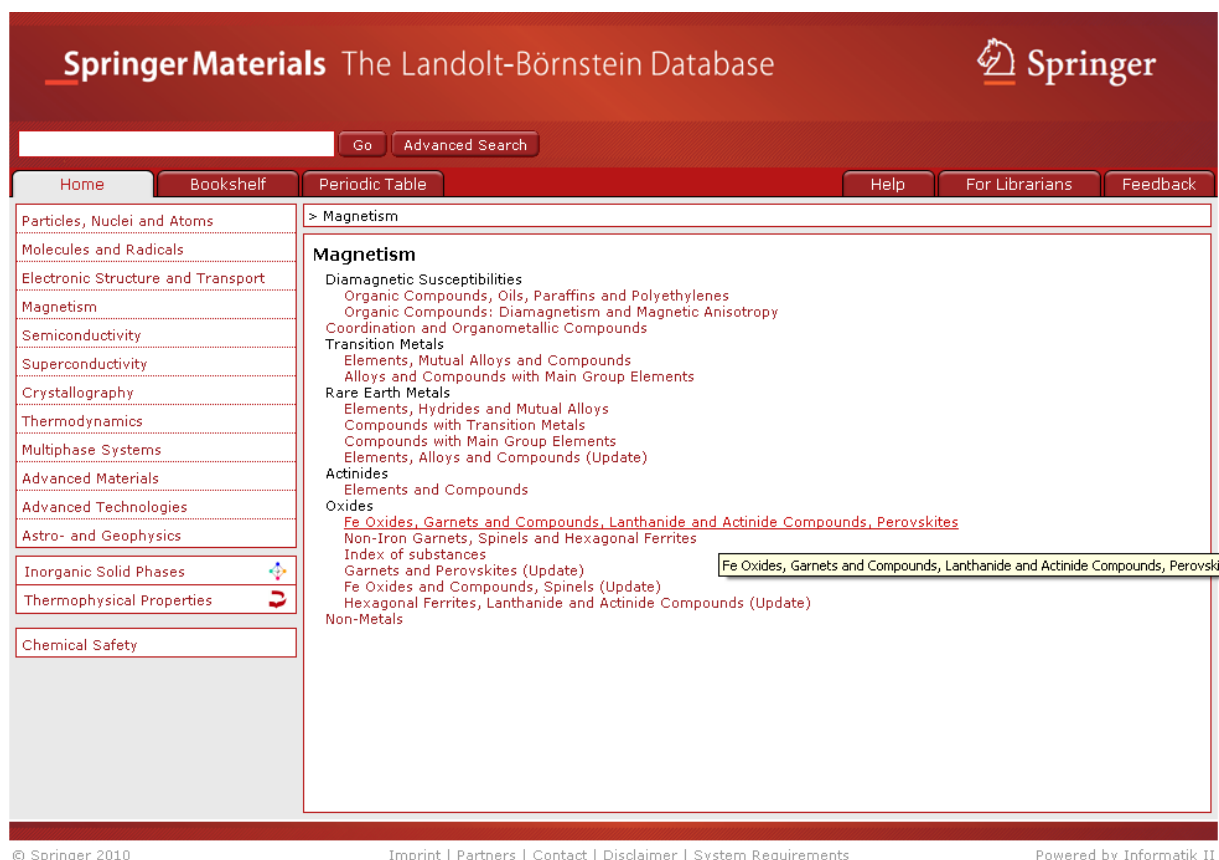
[up]

Subject Area Navigation

SpringerMaterials content is organized in 12 Subject Areas (see [homepage](#)):

- Particles, Nuclei and Atoms
- Molecules and Radicals
- Electronic Structure and Transport
- Magnetism
- Semiconductivity
- Superconductivity
- Crystallography
- Thermodynamics
- Multiphase Systems
- Advanced Materials
- Advanced Technologies
- Astro- and Geophysics

Click on one of the Subject Areas to move to the content level, a list of Sub-Areas will open in the main window. Red headlines offer further Sub-Sub-Areas. A "PDF" icon () shows that you have reached the content level; the nearby "i"-icon () opens the [InfoPage](#).



The screenshot displays the SpringerMaterials website interface. At the top, the logo "SpringerMaterials The Landolt-Börnstein Database" and the Springer logo are visible. Below the logo is a search bar with "Go" and "Advanced Search" buttons. A navigation bar contains "Home", "Bookshelf", "Periodic Table", "Help", "For Librarians", and "Feedback".

The main content area is divided into a left sidebar and a main panel. The sidebar lists 12 Subject Areas: Particles, Nuclei and Atoms; Molecules and Radicals; Electronic Structure and Transport; Magnetism; Semiconductivity; Superconductivity; Crystallography; Thermodynamics; Multiphase Systems; Advanced Materials; Advanced Technologies; Astro- and Geophysics; Inorganic Solid Phases; Thermophysical Properties; and Chemical Safety. The "Magnetism" subject area is selected and highlighted in red.


The main panel displays the "Magnetism" subject area. It features a red header "> Magnetism" and a list of sub-areas: Diamagnetic Susceptibilities (Organic Compounds, Oils, Paraffins and Polyethylenes; Organic Compounds: Diamagnetism and Magnetic Anisotropy; Coordination and Organometallic Compounds); Transition Metals (Elements, Mutual Alloys and Compounds; Alloys and Compounds with Main Group Elements); Rare Earth Metals (Elements, Hydrides and Mutual Alloys; Compounds with Transition Metals; Compounds with Main Group Elements; Elements, Alloys and Compounds (Update)); Actinides (Elements and Compounds); Oxides (Fe Oxides, Garnets and Compounds, Lanthanide and Actinide Compounds, Perovskites; Non-Iron Garnets, Spinels and Hexagonal Ferrites; Index of substances; Garnets and Perovskites (Update); Fe Oxides and Compounds, Spinels (Update); Hexagonal Ferrites, Lanthanide and Actinide Compounds (Update)); and Non-Metals. A red "PDF" icon is visible next to the "Fe Oxides, Garnets and Compounds, Lanthanide and Actinide Compounds, Perovskites" sub-area, and a red "i" icon is visible next to the "Index of substances" sub-area.

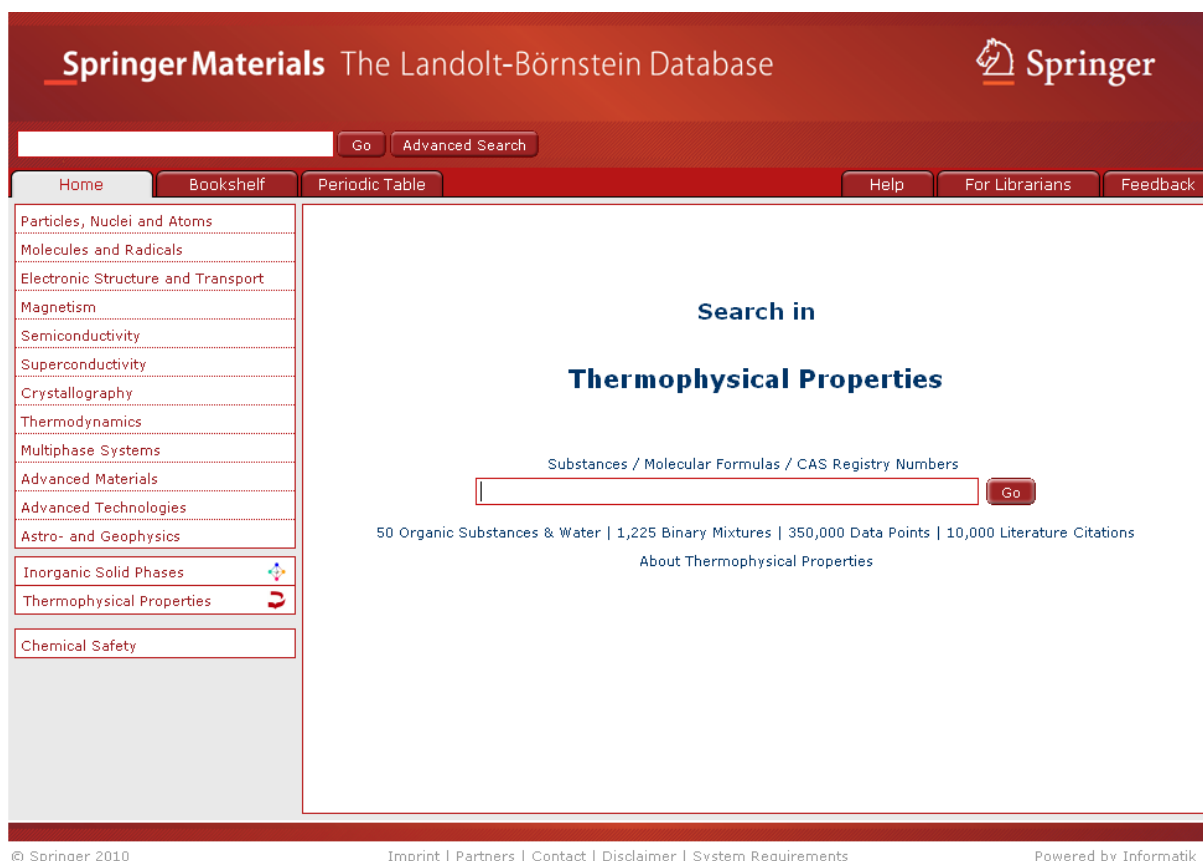
At the bottom of the page, the footer contains the text: "© Springer 2010", "Imprint | Partners | Contact | Disclaimer | System Requirements", and "Powered by Informatik II".

[up]

Thermophysical Properties (DDBST – Dortmund Data Bank Software & Separation Technology Database)

The subset of the DDBST (Dortmund Data Bank Software & Separation Technology) contains thermophysical properties of the 50 most important organic liquids plus water and their 1225 binary mixtures.

The database can be browsed and is accessible through all search functions. A logo () next to a [Search Hit](#) indicates the source.




The screenshot displays the SpringerMaterials website interface. At the top, the header reads "SpringerMaterials The Landolt-Börnstein Database" with the Springer logo on the right. Below the header is a search bar with a "Go" button and an "Advanced Search" link. A navigation menu includes "Home", "Bookshelf", "Periodic Table", "Help", "For Librarians", and "Feedback".

The main content area is titled "Search in Thermophysical Properties". It features a search input field with a "Go" button and the text "Substances / Molecular Formulas / CAS Registry Numbers". Below the search field, it states "50 Organic Substances & Water | 1,225 Binary Mixtures | 350,000 Data Points | 10,000 Literature Citations" and includes a link "About Thermophysical Properties".

A sidebar on the left lists various categories, with "Thermophysical Properties" highlighted and marked with the red horse logo. Other categories include "Particles, Nuclei and Atoms", "Molecules and Radicals", "Electronic Structure and Transport", "Magnetism", "Semiconductivity", "Superconductivity", "Crystallography", "Thermodynamics", "Multiphase Systems", "Advanced Materials", "Advanced Technologies", "Astro- and Geophysics", "Inorganic Solid Phases", and "Chemical Safety".

At the bottom of the page, the footer contains the text "© Springer 2010", "Imprint | Partners | Contact | Disclaimer | System Requirements", and "Powered by Informatik II".

Typical query for Thermophysical Properties:

SpringerMaterials The Landolt-Börnstein Database 

Go Advanced Search

Home Bookshelf Periodic Table Help For Librarians Feedback

Particles, Nuclei and Atoms
Molecules and Radicals
Electronic Structure and Transport
Magnetism
Semiconductivity
Superconductivity
Crystallography
Thermodynamics
Multiphase Systems
Advanced Materials
Advanced Technologies
Astro- and Geophysics

Inorganic Solid Phases
Thermophysical Properties
Chemical Safety

Search in
Thermophysical Properties

Substances / Molecular Formulas / CAS Registry Numbers

benzene


50 Organic Su 00 Literature Citations

Benzen
Benzen (71-43-2; C ₆ H ₆)
Benzen (71-43-2; C ₆ H ₆) + Water (7732-18-5; H ₂ O)
Acetone (67-64-1; C ₃ H ₆ O) + Benzen (71-43-2; C ₆ H ₆)
Benzen (71-43-2; C ₆ H ₆) + Hexane (110-54-3; C ₆ H ₁₄)
Benzen (71-43-2; C ₆ H ₆) + Methanol (67-56-1; CH ₄ O)
Benzen (71-43-2; C ₆ H ₆) + Phenol (108-95-2; C ₆ H ₆ O)
Benzen (71-43-2; C ₆ H ₆) + Toluene (108-88-3; C ₇ H ₈)
Ethanol (64-17-5; C ₂ H ₆ O) + Benzen (71-43-2; C ₆ H ₆)
Benzen (71-43-2; C ₆ H ₆) + Decane (124-18-5; C ₁₀ H ₂₂)
Benzen (71-43-2; C ₆ H ₆) + Pentane (109-66-0; C ₅ H ₁₂)

< previous Page 1 of 5 next >

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Typical overview for Thermophysical Properties:

SpringerMaterials The Landolt-Börnstein Database 


Benzen / Methanol
Thermophysical Data in the Dortmund Data Bank

Components

No.	Formula	Molar Mass	CAS Registry Number	Name
1	C ₆ H ₆	78.114	71-43-2	Benzen
2	CH ₄ O	32.042	67-56-1	Methanol

List of Available Properties

- Activity Coefficients at Infinite Dilution
- Azeotropic Data
- Excess Heat Capacities
- Excess Enthalpies
- Mixture Viscosities
- Solid-Liquid Equilibria
- Excess Volumes
- Densities
- Vapor-Liquid Equilibria

 Dortmund Data Bank Edition - 2010. Integrated in SpringerMaterials - 2010
Dortmund Data Bank by DDBST - Dortmund Data Bank Software and Separation Technology GmbH
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[up]

Your Query

A field in the [Advanced Search](#) that combines all search strings typed in any of the other fields of the Advanced Search page into a Boolean query that you can either submit as is or adapt to your needs before submitting to the search engine.

The screenshot displays the SpringerMaterials Advanced Search interface. At the top, it reads "SpringerMaterials The Landolt-Börnstein Database" and the Springer logo. Below this, there are tabs for "Substances, Properties, ...", "3D Molecules", and "Bibliographic References", along with "Help" and "Close" buttons. The main search area is titled "Your Query" and contains a text input field with the query: {"sulphur dioxide" or "7446-09-5" or "O2S"} {"virial coefficient"}. To the right of the input field are "Go" and "Clear" buttons. Below the input field, there are sections for "Search for ..." and "Search in ...". The "Search for ..." section includes fields for "Substances / Molecular Formulas / Element Systems / CAS Registry Numbers" (containing "sulphur dioxide" or "7446-09-5" or "O2S") and "Properties" (containing "virial coefficient"). The "Search in ..." section lists various categories with checkboxes, including "Particle", "Molecules and Radicals", "Electronic Structure and Transport", "Magnetism", "Semiconductivity", "Superconductivity", "Crystallography", "Thermodynamics", "Multiphase Systems", "Advanced Materials", "Advanced Technologies", "Astro- and Geophysics", "Inorganic Solid Phases", "Thermophysical Properties", and "Chemical Safety". To the right of the "Search in ..." list are three input fields for search modifiers: "... one or more of these words", "... exactly this phrase", and "... but none of these words". At the bottom of the search area, there are "Page 1 of 1" and "next >" buttons. The background shows a partial view of a search result for Benzene (C6H6).

[up]

Wildcards

SpringerMaterials supports single and multiple character wildcard searches within terms. Use the "?" symbol to perform a single character wildcard search and use the "*" symbol to perform a multiple character wildcard search.

For example, the query *sul*ite* returns results for both "sulphite" and "sulfite". Searching for *ferr?magnetism* shows hits for both "ferromagnetism" and "ferrimagnetism".

[up]