

Bijlage F Internetbronnen

Een totale lijst van deze verwijzingen kan worden gedownload via www.boomhogeronderwijs.nl. Hiermee zijn de genoemde pagina's rechtstreeks toegankelijk.

3 Materiaaleigenschappen

- ☞ 1 www.gordonengland.co.uk/hardness/ [hardheid conversie tabellen]

7 Materiaalkundig productonderzoek

- ☞ 1 www.normankoren.com/Tutorials/MTF6.html [optica formules]
- ☞ 2 www.zazoentje.be/forum/lessen/optica/optica.pdf [cursus optica]
- ☞ 3 <http://ceer.alfred.edu/Research/Summer/gaustadpaper.pdf> [micro-structuuronderzoek van glassoorten]
- ☞ 4 <http://kaker.com/etch/demo/list/list.html> [etsmiddelen]
- ☞ 5 www.metallography.com/index.html [metaalmicroscopie]
- ☞ 6 <http://hyperphysics.phy-astr.gsu.edu/Hbase/debrog.html> [golfkarakter van elektronen]
- ☞ 7 http://en.wikipedia.org/wiki/Electron_diffraction [elektrondiffractie]
- ☞ 8 <http://users.ugent.be/~rpetrov> [(Struers) prepareren voor ESBD].
- ☞ 9 www.ebsd.info/ [kikuchi lijnen]
- ☞ 10 www.ebsd.com/ebsdexplained.htm [backscatter elektronen detectie]
- ☞ 11 www.geosci.ipfw.edu/sem/semedx.html [onderzoekstechnieken met de SEM]
- ☞ 12 http://serc.carleton.edu/research_education/geochemsheets/techniques/SEM.html [werking van de SEM]
- ☞ 13 www.eng.uc.edu/~gbeaucag/Classes/XRD/Diffraction%20in%20TEM.ppt [cursus TEM]
- ☞ 14 www.microscopy.ethz.ch/ [elektronenmicroscopie]
- ☞ 15 www.waset.org/pwaset/v2/v2-29.pdf [Röntgen techniek/digitaal voor lasdefecten]
- ☞ 16 www.ndt.net/article/wcndt2004/pdf/frontiers_of_research_in_ndt/435_redmer.pdf [Röntgen scheurdetectie tomografie]
- ☞ 17 www.eserc.stonybrook.edu/ProjectJava/Bragg/ [wet van Bragg/diffractie]
- ☞ 18 www.chem.qmul.ac.uk/surfaces/scc/scat1_1b.htm [uitleg Miller index]
- ☞ 19 http://iar-ira.nrc-cnrc.gc.ca/smpl/smpl_5d2_e.html [randspleetlicht methode]
- ☞ 20 www.ndt.net/article/v05n01/barcohen/barcohen.htm [NDO lichttechnieken]
- ☞ 21 www.imr.wayne.edu/user_files/2/file/Research/NASAFAADoD98.pdf [warmtegolfbeelden, non-destructief onderzoek]
- ☞ 22 www.stormingmedia.us/66/6668/A666813.html [warmtegolftechniek]
- ☞ 23 www.micro.magnet.fsu.edu/primer/techniques/confocal/ [confocale microscopie]
- ☞ 24 www.physics.emory.edu/~weeks/confocal/ [confocale microscopie]

- ☞ 25 <ftp://ftp.rta.nato.int/PubFullText/RTO/EN/RTO-EN-015/EN-015-14.pdf> [overzicht NDO technieken]
- ☞ 26 www.atclabs.com/Photos.htm [voorbeelden van SEM opnamen, onder andere dendrietgroei]
- ☞ 27 www.mpie.de/2693/?type=1 [ferrietvorming in duplexstaal]
- ☞ 28 www.msm.cam.ac.uk/phase-trans/2003/Parsons.Tancret.pdf [voorbeeld van ontwikkeling kruipvast staal]
- ☞ 29 www.msm.cam.ac.uk/phase-trans/2003/sourmail.review/index.html [carbide precipitatie in hittevast roestvast staal]
- ☞ 30 www.tech.plym.ac.uk/sme/interactive_resources/tutorials/FailureAnalysis/Fractography/Fractography_Resource.htm [cursus vermoeiingsschadeherkenning]
- ☞ 31 www.feadomain.com/downloads56.html [rekenen aan vermoeiing]
- ☞ 32 www.waset.org/pwaset/v36/v36-109.pdf [proef voor scheurgroeievaluatie]
- ☞ 33 www.twi.co.uk/content/jk76.html [CTOD, vermoeiingstest]

Overige links

- <http://nhml.com/resources/2004/1/1/ductile--brittle-fracture> [duktilie breuk/brosse breuk]
- http://materials.open.ac.uk/mem/mem_mf.htm [breukvlakken]

10 Kunststoffen en hun toepassingen

www.eriks.com
www.matweb.com

11 Technische keramiek

- ☞ 1 www.ceramics.nist.gov/srd/summary/advmatdb.htm [keramiekdatabases]
- ☞ 2 www.matweb.com [keramiekdata]
- ☞ 3 www.ceramics.nist.gov/srd/summary/ftmain.htm [korreldata keramiek]
- ☞ 4 www.sv.vt.edu/classes/MSE2094_NoteBook/97ClassProj/exper/gordon/www/ceramic.html [scheuren en sterkte keramieken]
- ☞ 5 www.ms.ornl.gov/INGSM-7/papers/paper%204.17.ppt [test voor kerftaaiheid keramiek]
- ☞ 6 www.mathpages.com/home/kmath122/kmath122.htm [Weibull statistiek]
- ☞ 7 www.weibull.com/LifeDataWeb/the_weibull_distribution.htm [Weibull totaal]
- ☞ 8 <http://office.microsoft.com/nl-nl/excel/HP052093381043.aspx> [Weibull functie in Excel]
- ☞ 9 www.qualitydigest.com/jan99/html/body_weibull.html [voorbeeld berekening in Weibull]
- ☞ 10 www.graphitestore.com/ [chemisch uithardend keramiek]
- ☞ 11 <http://glassproperties.com/> [eigenschappen glas]

- 🔗 12 www.ceramicindustry.com/ [eigenschappen glasvezels]
- 🔗 13 www.azom.com/details.asp?ArticleID=764 [E-glas]
- 🔗 14 www.ctcms.nist.gov/~cecamp/TMS2005/TMS_SF_15Feb2005_final-tiketar.ppt [Titaanboride diffusiecoating]
- 🔗 15 www.iisc.ernet.in/academy/maternal/bmsapr2001/203.pdf [scheuren in plasmacoating]
- 🔗 16 www.azom.com/Details.asp?ArticleID=2986 [plasma spray keramiek]
- 🔗 17 www.niiar.ru/eng/chrom.htm [Chroomcarbide lagen]
- 🔗 18 www.iisc.ernet.in/academy/maternal/bmsjun2001/273.pdf [CVD van SiC vezels]
- 🔗 19 <http://ceramicrotaryengines.com/> [wankelmotor van keramiek]
- 🔗 20 www.grantadesign.com/resources/process/casestudies/sparkplug.htm [ontsteker, bougie, alumina]
- 🔗 21 www.wmt.com/Downloads/AluminavsZirconiaWhitepaper.pdf [alumina <> zirconia heupimplantaat]
- 🔗 22 www.twi.co.uk/content/ceramics_brazing.html [solderen van keramiek]
- 🔗 23 www.dynacer.com/ZTA.htm [taai zirconia]
- 🔗 24 www.chemlink.com.au/zircon.htm [toepassingen zirconia]
- 🔗 25 www.kyoceratyc.com/ [keukenmessen]
- 🔗 26 www.carbo.com/ [siliciumcarbide producten, met name afdichtingen]
- 🔗 27 www.chemicals-technology.com/contractors/heattransfer/st_go-bain/ [siliciumcarbide warmtewisselaars]
- 🔗 28 www.omegaslate.com/advancedceramics.htm [siliciumcarbide propellers, kogelkranen]
- 🔗 29 <http://americas.kyocera.com/kicc/products/index.html> [automobiel toepassingen keramiek]
- 🔗 30 www.memsnet.org/material/ [data keramieken]
- 🔗 31 www.efunda.com/units/hardness/convert_hardness.cfm?cat=Steel&HD=HK [hardheid conversie]
- 🔗 32 www.azom.com/Details.asp?ArticleID=4431 [macor glass]
- 🔗 33 http://search.corning.com/search?access=p&entqr=0&ud=1&output=xml_no_dtd&oe=UTF-8&ie=UTF-8&filter=0&client=corp-en_cms&proxystylesheet=corp-en_cms&site=corp_cms&q=properties [eigenschappen van speciale glassoorten]
- 🔗 34 www.tokaicarbon.co.jp/en/index.html [carbon producten]
- 🔗 35 www.geocities.com/aardduck/nano_tubes.html [toepassingen nanotubes]

Overige links

- www.doitpoms.ac.uk/tlplib/fracture/printall.php [breekgedrag van glas]
- http://products.asminternational.org/mgo/searchResults.do?Cr3_10=9&Cr3_12=&Cr3_6=&search=flakes [foto's grafiet]
- www accuratus.com [keramische materialen en toepassingen]
- www.morgantechnicalceramics.com/ [zeer veel informatie over keramieken, voor gratis leden]
- www.technicalglass.co.uk/materials/ceramics.html [datasheets keramieken]
- www.technicalglass.co.uk/materials/glassesGlassCeramics.html [datasheets glas]

www.ceramics.nist.gov/ [algemene informatie over keramiek]
www.matbase.com/material/ceramics/ [specifieke data keramiek,
ook eco waarden]
<http://glassproperties.com>

12 Metaalkunde

- ☞ 1 www.mde.com/publications/IntergranCor.pdf [interkristallijne corrosie]
- ☞ 2 www.key-to-metals.com/Article128.htm [precipitaatharden van aluminium]
- ☞ 3 www.scielo.br/scielo.php?script=sci_arttext&pid=S1516-14392005000400019 [randontkoling bij staalsoorten]
- ☞ 4 www.steeluniversity.org/content/html/eng/default.asp?catid=172&pageid=2081271822 [vaste oplossingsharding bij staalsoorten]
- ☞ 5 <http://de.wikipedia.org/wiki/Stahl> [voorbeeld van staalaanduidingen]
- ☞ 6 www.key-to-metals.com/Article81.htm [aanduiding volgensUNS]
- ☞ 7 www.azom.com/details.asp?ArticleID=1744 [vormgeheugenlegeringen]
- ☞ 8 www.msm.cam.ac.uk/phase-trans/2003/memory.movies.html [film van geheugenlegeringen]
- ☞ 9 www.msm.cam.ac.uk/phase-trans/kirkendall.html [Kirkendal diffusie-mechanisme]

Overige links

www.doitpoms.ac.uk/tlplib/miller_indices/worked_examples.php [uitleg Miller indices]
www.nsc.co.jp/en/tech/report/pdf/n9510.pdf [hardbaarheid en koolstofequivalent]
www.nhml.com/newsletters/NHML-Materials-Testing-Newsletter-980401.pdf [koolstofequivalent]
[www.timken.com/en-us/Knowledge/engineers/handbook/Documents/Practical_Data_Metallurgists\(4023\)-Sept06.pdf](http://www.timken.com/en-us/Knowledge/engineers/handbook/Documents/Practical_Data_Metallurgists(4023)-Sept06.pdf) [stalen, cttt]
www.onera.fr/photos-en/materials/siliciure-niobium-gallery.php [dendrieten]
www.asminternational.org/asmenterprise/apd/help/Intro.aspx [introductie fase-diagrammen]

13 Metaalkunde; mechanisch gedrag van metalen

- ☞ 1 www.msm.cam.ac.uk/mt/114/Research/Ferland/CryogenicTreatment.htm [diepkoelen van staalsoorten]

Overige links

<http://machinedesign.com/ContentIndex/717/Materials.aspx> [metaalmatrix composieten]

14 Metaalkunde: corrosie van metalen

- ☞ 1 www.thuisexperimenteren.nl/science/avogrado/avogrado.htm
- ☞ 2 www.corrosionsource.com/technicallibrary/corrdoctors/index.htm

Overige links

www.doitpoms.ac.uk/tlplib/batteries/printall.php [electrochemie]

www.tijsat.tu.ac.th/issues/2004/no2/2004_V9_No2_7.PDF

[waterstofbrosheid]

www.corrocean.nl/engineering/engineering_general_nl.htm [corrosieleer, nederlands]

15 IJzer

- ☞ 1 www.msm.cam.ac.uk/phase-trans/2004/Bain.Alloying/ecbain.html [legeringelementen in staal]
- ☞ 2 www.key-to-steel.com/Articles/Art50.htm [legeringelementen in staal]
- ☞ 3 www.materialsengineer.com/E-Alloying-Steels.htm [legeringelementen in staal]
- ☞ 4 http://iws.tugraz.at/IWS_tree/Lehre/eLearning/Metallographie/Met_l/d_lehre_met_l_unlegiert.html [metallografie koolstofstalen]
- ☞ 5 www.thefabricator.com/MetalsMaterials/MetalsMaterials_Article.cfm?ID=1139 [omvormstalen, overzicht]
- ☞ 6 www.key-to-steel.com/Articles/Art42.htm [ware trekkromme]
- ☞ 7 www.key-to-steel.com/default.aspx?ID=CheckArticle&NM=166 [koudwalsen]
- ☞ 8 www.jstage.jst.go.jp/article/isijinternational/46/5/734/_pdf [IF-staal]
- ☞ 9 www.journalarchive.jst.go.jp/jnlpdf.php?cdjournal=isijinternational1989&cdvol=41&noissue=6&startpage=520&lang=en&from=jnlabstract [BH/TRIP/DP staal]
- ☞ 10 www.steel.org/AM/Template.cfm?Section=PDFs&TEMPLATE=/CM/ContentDisplay.cfm&CONTENTFILEID=957 [omvormbaarheid modern staal]
- ☞ 11 www.msm.cam.ac.uk/phase-trans/2005/TRIP.steels.html [TRIP staal]
- ☞ 12 www.key-to-steel.com/default.aspx?ID=CheckArticle&NM=182 [HSLA]
- ☞ 13 www.thefabricator.com/Metallurgy/Metallurgy_Article.cfm?ID=1365 [omvormen]
- ☞ 14 www.thefabricator.com/MetalsMaterials/MetalsMaterials_Article.cfm?ID=1139 [hogesterkte staalsoorten deel1]
- ☞ 15 www.thefabricator.com/MetalsMaterials/MetalsMaterials_Article.cfm?ID=1158 [hogesterkte staalsoorten deel2]
- ☞ 16 www.key-to-steel.com/Articles/Art103.htm [maraging]
- ☞ 17 http://public.carnet.hr/metalurg/Metalurgija/2006_vol_45/No_1/MET_45_1_051_055_Kvackaj.pdf [bake hardening]
- ☞ 18 www.key-to-nonferrous.com/default.aspx?ID=CheckArticle&NM=156 [omvormbaarheidparameters]
- ☞ 19 www.bohler-edelstahl.com/b_400.htm [gereedschapsstaal v. koude bewerking]

- ☞ 20 www.bohler-edelstahl.com/b_436.htm [gereedschapsstaal v. warme bewerking]
- ☞ 21 www.bohler-edelstahl.com/b_380.htm [snelstaal]
- ☞ 22 www.azom.com/details.asp?ArticleID=1024 [RVS AISI 440]
- ☞ 23 www.azom.com/details.asp?ArticleID=958 [duplex 2205]
- ☞ 24 www.sandmeyersteel.com/17-4PH.html [precipitaathardend staal 17-4PH]
- ☞ 25 www.mpif.org/ [organisatie metaalpoeder fabrikanten]
- ☞ 26 www.hoeganaes.com/Publications/40.pdf [groene sterkte]
- ☞ 27 www.precisionpm.com/Iron_Copper_and_Copper_Steels.htm [lagermateriaal]
- ☞ 28 www.crucibleservice.com/datasheets/index.cfm [gereedschapsstaal/P/M]
- ☞ 29 www1.eere.energy.gov/industry/metalcasting/completed_rd.html [gietprocessen]
- ☞ 30 www.key-to-steel.com/Articles/Art84.htm [grijs gietijzer]

Overige links

- www.formteile.ch/Stahlguss-DIN-EN-1681.htm [gietstaal]
- www.formteile.ch/eisenguss.htm [lamellair gietijzer]
- www.metallography.com/technotes/iron/iron.htm [grafietvormen]
- www1.eere.energy.gov/industry/metalcasting/pdfs/thin_wall_iron_castings.pdf [dunwandig gieten]

16 Aluminium

- ☞ 1 www.key-to-metals.com/Article55.htm [legeringelementen in aluminium]
- ☞ 2 www.efunda.com/materials/alloys/aluminum/temper.cfm [ASTM aanduiding Al]
- ☞ 3 www.azom.com/details.asp?ArticleID=310 [aluminium aanduidingen]
- ☞ 4 www.key-to-metals.com/Article139.htm [hersteltgloeien aluminium]
- ☞ 5 www.mse.mtu.edu/classes/my4130/Downloads/Rheocasting%20paper%20by%20Delphi.pdf [thixotroop omvormen]

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- http://machinedesign.com/BDE/materials/bdemat5/bdemat5_1.html
- www.materialsengineer.com/E-Aluminum.htm

17 Koper

- ☞ 1 www.copper.org/resources/properties/microstructure/be_cu.html [berylliumkoper]
- ☞ 2 www.copper.org/resources/properties/standard/euronumb.html [euronorm aanduiding koper]
- ☞ 3 www.cda.org.uk/frontend/numpubs.htm [koperlijst compleet]
- ☞ 4 www.copper-key.org/ [copper-key, vergelijking kopernormen]
- ☞ 5 www.copper.org/resources/properties/microstructure/brasses.html [messing, microstructuren]

- 6 www.cda.org.uk/megab2/corr_rs/pub80/default.htm [corrosie aluminiumbrons]
- 7 www.cda.org.uk/megab2/corr_rs/pub82/default.htm [eigenschappen aluminiumbrons]
- 8 www.busbymetals.com/pdf/guide_to_be_cu.pdf [koper-beryllium legeringen]
- 9 www.gordonengland.co.uk/hardness/ [hardheid conversie tabellen]

Overige links

- www.materialsengineer.com/E-Copper-Alloys.htm
- www.buntingbearings.com/images/pm_spc_table1.htm [P/M koper]
- www.efunda.com/materials/alloys/copper/list_copper.cfm?m=&Page_Title=Brasses&C=copper&G=brass [koper lijst]
- www.anchorbronze.com/alloydatabase.htm [koper]
- www.cda.org.uk/frontend/numpubs.htm [koperlijst compleet]

18 Nikkel

- 1 www.nickel-alloys.net/nickelalloys.html [compleet overzicht nikkellegeringen]
- 2 www.key-to-nonferrous.com/default.aspx?ID=CheckArticle&NM=9 [eigenschappen nikkellegeringen]
- 3 www.msm.cam.ac.uk/phase-trans/2003/sourmail.review/index.html [precipitaten in nikkel-ijzer-chroom]

Overige links

- www.magellanmetals.com/ [nikkellegeringen]
- www.azom.com/details.asp?ArticleID=916 [nikkel-chroom]
- www.hightempmetals.com [nikkel- en kobaltlegeringen]

19 Overige non-ferrometalen: magnesium, titanium en zink

- 1 www.brunel.ac.uk/554/BCAST%20publications/RDCMg.pdf [eigenschappen reocast magnesium]
- 2 www.key-to-metals.com/Article78.htm [Mg aanduidingen ASTM]
- 3 http://members.tripod.com/Mg/asm_prop.htm [enige Mg legeringen]
- 4 www.faraday-advance.net/content/news/36.pdf [rheocasting]
- 5 www.thyssenkrupp-titanium.com/company/index.html
- 6 www.titaniuminfogroup.co.uk/
- 7 www.key-to-metals.com/Article21.htm [zinkaanduidingen]
- 8 www.brockmetal.co.uk/products/zinc/ [zinkgietlegeringen]

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- www.magellanmetals.com/ [titaniumlegeringen]
- www.materialsengineer.com/E-Titanium.htm
- www.schloetter.com/index.php?id=52 [galvanotechniek]