

COMPENDEX (Ei Compendex)

Subject Coverage	• Civil and railroad engineering • Environmental and agricultural engineering • Geological and marine engineering • Mining and metallurgy • Chemical, petroleum, and fuel engineering • Bioengineering • Electrical engineering and electronics • Mechanical, automotive, and industrial engineering • Control devices and principles, instruments and measurement • Nuclear technology • Aerospace engineering • Heat and thermodynamics • Computers and data processing, communication engineering • Sounds and acoustical technology • Optics and optical devices			
File Type	Bibliographic			
Features	Thesaurus Alerts (SDIs) CAS Registry Number® Identifiers Keep & Share	Controlled Term (/CT), Controlled Term in German (/CTDE) Weekly ☐ ☒	SLART Structures	☒ ☐
Record Content	• Bibliographic information, abstracts, and indexing			
File Size	• More than 30.2 million records (11/2025)			
Coverage	1970-present			
Updates	Weekly			
Language	English			
Database Producer	Elsevier (Engineering Information) 360 Park Avenue South New York, NY 10010 USA Phone: 212-633-3895 Fax: 212-633-3680 Email: eicustomersupport@elsevier.com Copyright Holder			

Sources

- Journals
 - Books
 - Reports
 - Conference contributions
 - Other non-conventional literature
-

User Aids

- Online Helps (HELP DIRECTORY lists all help messages available)
 - Ei Thesaurus – Classification Code
 - STNGUIDE
-

Cluster

- AEROTECH
 - ALLBIB
 - AUTHORS
 - CHEMENG
 - CHEMISTRY
 - COMPUTER
 - CONSTRUCTION
 - CORPSOURCE
 - ELECTRICAL
 - ENGINEERING
 - ENVIRONMENT
 - FUELS
 - GEOSCIENCE
 - GOVREGS
 - MATERIALS
 - MEETINGS
 - METALS
 - NPS
 - PETRLOEUM
 - POLYMERS
 - [STN Database Cluster](#) information
-

Search and Display Field Codes

Fields that allow left truncation are indicated by an asterisk (*).

General Search Fields

Search Field Name	Search Code	Search Examples	Display Codes
Basic Index* (contains single words from title (TI), abstract (AB), classification code (text) (CC), controlled term (CT), and supplementary term (ST) fields)	None or /BI	S TURBOSHAFT ENGINE# S DIGITAL(2W)CONTROL S JET TURBINE# S FEEDBACK/BI,CT S ?LASER?	AB, CC, CT, ST, TI
Abstract*	/AB	S ?SYMMETRI?/AB	AB
Accession Number	/AN	S 2008-4911759913/AN	AN
Author (editor)	/AU	S CHENEY PAUL H/AU S CHENEY, PAUL H/AU S HERMAN, ?/AU	AU
Author Identifier (ORCID)	/AUID	S 0000-0003-4999-9161/AUID	AUID
Classification Code (code and text) (1)	/CC	S (BRIDGES TUNNELS)/CC S 538.1/CC	CC
Controlled Term (4)	/CT	S MAN MACHINE SYSTEMS/CT S *MOTOR TRANSPORTATION/CT S (FAILURE ANALYSIS(S)AUTOMAT?)/CT S MAGNETIC RESONANCE+NT/CT	CT
Controlled Term in German (2)	/CTDE	E AUSSENVERKLEIDUNG+ALL/CTDE S FACINGS/CTDE	CT
Controlled Word	/CW	S MOTOR TRUCK TERMINALS/CW	CT
Country of Publication (ISO code and text)	/CY	S US/CY	CY
Corporate Source (author affiliations, and e-mail addresses) (1)	/CS	S (IBM(S)LOS(W)GATOS)/CS	CS, EML
Digital Object Identifier	/FTDOI (or /DOI)	S 10.1007/S00253-023-12552-X/FTDOI	FTDOI, SO
Document Type (STN code and text)	/DT (or /TC)	S REPORT/DT S B/DT	DT
E-mail Address (1)	/EML	S AMERICAN EDU/EML	CS, EML
Entry Date (3)	/ED	S ED=20090109	ED
Field Availability	/FA	S L10 AND AB/FA	FA
International Standard (Document) Number (CODEN, ISBN, and ISSN)	/ISN	S MACYAC/ISN S 1212-4834/ISN S 9197040843/ISN	ISN, SO
Journal Title (contains full and abbreviated journal titles)	/JT	S ACTA ASTRONAUTICA/JT S J ACOUST SOC AM /JT	JT, JTA, JTF, SO
Language (ISO code and text)	/LA	S FRENCH/LA	LA
Meeting Date (3)	/MD	S 900425-900427/MD	MD, SO
Meeting Location	/ML	S BRUSSELS/ML	ML, SO
Meeting Number	/MN	S 13230/MN	MN
Meeting Organizer (1)	/MO	S TECHNOLOGY GROUP/MO	MO, SO
Meeting Title	/MT	S (ELECTRONIC MANUFACTURING AND SYMPOSIUM)/MT	MT, SO
Meeting Year (3)	/MY	S 1990/MY	MD, SO
Number of Report	/NR	S AIAA 2005-818/NR	NR

General Search Fields (cont'd)

Search Field Name	Search Code	Search Examples	Display Codes
Publication Date (3) Publication Year (3) Publisher (1) Publisher Item Identifier Reference Count	/PD /PY /PB /PUI /REC (or /RE.CNT) /SO	S JAN-FEB 2007/PD S L2 AND 1981-1983/PY S SPRINGER HEIDELBERG/PB S 1011092002203496/PUI S 8-10/REC S TRANSP SCI/SO S NATMA4/SO S 0499-9320/SO S 0-8031-0443-X/SO S (REMOTE SENSING (S) VEGETATION)/SO S 9728865201/SO S PSISDG/SO S GERMAN/SL S DE/SL S GADOLINIUM/ST S LONGWALL MINING/TI S (STOCKPILES(S)COKE OVEN)/TI S ?ALLOCATION?/TI	PD, SO PY, SO PB, SO PUI REC, SO SO SL ST TI
Source (contains CODEN, DOI, journal title and other higher level titles, ISBN, ISSN, publisher, meeting information, meeting organizers and sponsors, number of report, URL)	/SL /ST /TI	S ELSEVIER JOURNALS/URL S UP=20090127 S 10-20/WC.T	SO, URL ED WC.T

(1) Search with implied (S) proximity is available in this field.

(2) EXPAND with German terms may be used in the /CTDE thesaurus field to identify the corresponding English thesaurus terms. Only English terms are indexed and thus searchable in the database. This search can be carried out in the /CTDE field.

(3) Numeric search field that may be searched using numeric operators or ranges.

(4) Major Controlled Terms preceded by and searched with a leading asterisk.

Property Fields ⁽¹⁾

In COMPENDEX a numeric search for a specific set of physical properties (/PHP) is available within the abstract and title fields. The numeric values are not displayed as single fields, but highlighted within the hit displays.

Use EXPAND/PHP to search for all available physical properties. A search with the respective field codes will be carried out in the abstract and title fields. The /PHP index contains a complete list of codes and related text for all physical properties available for numeric search.

Field Code	Property	Unit	Search Examples
/AOS /BIR /BIT /CAP /CDN /CMOL	Amount of substance Bit Rate Stored Information Capacitance Current Density Molarity (Concentration, amount of substance)	Mol Bit (Bit) Bit Farad Ampere/Square Meter mol/l	S 10/AOS S 100000-160000/BIR S BIT > 3 MEGABIT (10A) STORAGE S 1-10 MF/CAP S CDN>5 A/M**2 S MOLYBD?/BI (S) 2/CMOL
/CON /DB /DEG /DEN	Conductance Decibel Degree Density (Mass Density)	S (Siemens) Decibel Degree Kg/m3	S 1E-2/CON S DB>50 S (POLARI? (S) ANGLE)/BI (S) 45/DEG S (METHOD? (S) COMPO?)/AB (S) 5E-3-10E-3/DEN
/DEQ /DOS /DV	Dose Equivalent Dosage Viscosity, dynamic	Sievert Milligram/Kilogram Pa * s (Pascal * second)	S DEQ>0.5 (S) RADIATION S DOS>0.8 S DV>5000

Property Fields ⁽¹⁾ (cont'd)

Field Code	Property	Unit	Search Examples
/ECD /ECH /ECO	Electric Charge Electric Charge Electrical Conductivity	Coulomb/Square Meter Coulomb Siemens/Meter	S 1-20 /ECD.EX (XA) ELECTRICAL S 15/ECH S ECO>5000 (XA) GEOTHERMAL EFFECTS
/ELC /ELF /ENE /ERE /FOR /FRE /IU /KV /LEN (or /SIZ) /LUME	Electric Current Electric Field Energy Electrical Resistivity Force Frequency International Unit Viscosity, kinematic Length Luminous	Ampere Volt/Meter J (Joule) Ohm * Meter N (Newton) Hz (Hertz) none m2/s Meter Lux	S 1-10/ELC S 1-10/ELF S NUTRIENTS AND 100/ENE S ERE>10 S 50 N/FOR S ANALY?/AB (10A) 0-3/FRE S IU>100 (P) INTERFERON S LUBRICANT/BI (S) 10E-5/KV S 1-4/LEN S 10-50/LUME
/LUMF	Emittance/Illuminance Luminous Flux (Luminous Power)	Lumen	S FLUID (P) LUMF>3
/LUMI /M /MCH /MFD (or /MFS)	Luminous Intensity Mass Mass to Charge Ratio Magnetic Flux Density	Candela Kg (Kilogram) none Tesla	S 5<LUMI<15 S ALLOY/BI (30A) 1E-10-1E-5/M S MCH=3 S MFD>0E-3(S)MAGNETIC RESONANCE
/MFR (or /MFL) /MM /MOLS /MVR	Mass Flow Rate Molar Mass Molality of Substance Melt Volume Rate, Melt Flow Rate	Kilogram/Second g/mol mol/kg none	S MFR>1.2 S 2000-3000 G/MOL/MM S 01.-10 mol/kg/MOLS S 5-10/MVR
/NUC /PER	Nutrition Content Percent (Proportionality)	none Percent	S NUC<100 (XW) NUTRIENT S (TITAN? (3A) DIOXID?)/AB (S) 53/PER
/PERA /PHV /POW	Permittivity, Absolute pH Power	Farad/Meter pH W (Watt)	S 1-10/PERA (S) BUFFER S 7.4-7.6/PHV S (SOLAR? OR PHOTOVOLTAIC?)/BI (10A) 5-10/POW
/PRES (or /P)	Pressure	Pa (Pascal)	S (VACUUM (5A) DISTILL?)/BI (S) 1000-1100/PRES S RAD>100 S VOLTAGE/AB (P) 1-10/RES
/RAD /RES	Radioactivity Electrical Impedance/resistance	Bq (Becquerel) Ohm	S 5000-8000/RSP AND PARAFFIN S (COATING? OR FOIL?)/BI (S) 10-100/SAR
/RSP /SAR	Rotational Speed Area /Surface Area	Revolution/Minute m2	S SOL>20 (10W) WATER S 60 J/M**2 /STSC S 2-17/TCO (S) THERM? S (STABILITY (25A) VITAMIN?) (S) 10/TEMP
/SOL /STSC /TCO /TEMP (or /T)	Solubility Surface Tension Thermal Conductivity Temperature	Gram/100 gram J/m2 K (Kelvin) K (Kelvin)	S CONDUCT?/AB (10W) 0-1/TIM S EVOL?/BI AND 2E-4-5E-4/VEL S VISCO?/AB (S) VELA<350 S 1-10/VLR (XA) VARIABILITY S ?EFFECT?/BI (15A) 1E-8-2E-8 /VOL S APPLICATION/BI(10A) 5E-3<VOLT<7E-3
/TIM /VEL (or /V) /VELA /VLR /VOL /VOLT	Time Velocity Velocity, angular Volumetric Flow Rate Volume Voltage	S (Second) m/s (Metre per Second) rpm Cubic Meter/Second m3 V (Volt)	

(1) Exponential format is recommended for the search of particularly high or low values, e.g., 1.8E+7 or 1.8E7 (for 18000000) or 9.2E-8 (for 0.000000092).

THESAURUS FIELDS

The Engineering Index Thesaurus is available online in fields /CT (Controlled Term) and /CTDE (Controlled Term in German) (German-English Edition).

All Relationship Codes can be used with both the SEARCH and EXPAND command.

Code	Content	Examples
ALL	All Associated Terms (BT, SELF, DA, NOTE, USE, USE+, NEW, UF, UF+, OLD, NT, RT, CC)	E SATELLITES+ALL/CT E BESCHICHTUNGEN+ALL/CTDE
AUTO (1)	Automatic Relationship (SELF, USE, USE+, NEW, UF, UF+, OLD)	S COATINGS+ALL/CTDE S FLARE STACKS+AUTO/CT
BT	Broader Terms (BT, SELF)	E JUTE FASERN+BT/CTDE S JUTE FIBERS+BT/CTDE
HIE	Hierarchy (all Broader and Narrower Terms) (BT, SELF, NT)	E MAGNETIC DEVICES+HIE/CT
NOTE	Term with date and scope note (SELF, DA, NOTE)	E RAILS+NOTE/CT
NT	Narrower Terms (SELF, NT)	S RAILROAD TRACKS+NT/CT
RT	Related Terms (SELF, RT)	E SATELLITES+RT/CT
UF	Preferred and Forbidden Terms (SELF, UF, UF+, OLD)	E MAGNETIC DISK STORAGE+UF/CT
USE	Forbidden and Preferred Terms (SELF, USE, USE+, NEW)	S PARKWAYS+USE/CT

(1) Automatic Relationship is SET OFF. In case of SET REL ON, the result of EXPAND or SEARCH without any relationship code is the same as described for AUTO.

DISPLAY and PRINT Formats

Any combination of formats may be used to display or print answers. Multiple codes must be separated by spaces or commas, e.g., D L1 1-5 TI AU. The fields are displayed or printed in the order requested.

Hit-term highlighting is available for all fields except AU and CS. Highlighting must be ON during SEARCH to use the HIT, KWIC, and OCC formats.

Format	Content	Examples
AB AN AU AUID (1) CC CS CT CY DT (TC) ED (UP) EML (1) FTDOI (DOI) (1) ISN (1) JT (1) JTA (1) JTF (1) LA MD ML MN MO MT NR PD (1) PB (1) PUI PY (1) REC (RE.CNT) (1) SL SO ST TI UP URL (1) WC.T (1)	Abstract Accession Number Author Author Identifier (ORCID) Classification Code Corporate Source (author affiliations, and e-mail addresses) Controlled Term Country of Publication Document Type Entry Date E-mail Address Digital Object Identifier International Standard (Document) Number Journal Title Journal Title, Abbreviated Journal Title, Full Language Meeting Date Meeting Location Meeting Number Meeting Organizer Meeting Title Number of Report Publication Date Publisher Publisher Item Identifier Publication Year Reference Count Summary Language Source Supplementary Term Title Update Date Uniform Resource Locator Word Count, Title	D TI AB D 1-5 AN D AU TI D AUID D CC CT D CS D CT CC D CY D DT D ED D EML D FTDOI D ISN D JT D JTA D JTF D LA D MD D ML D MN D MO D MT D NR D PD D PB D PUI D PY D REC D SL D SO D CT ST 5-15 D TI 1-10 D UP D URL D WC.T
ABS ALL DALL IAL ALLO BIB IBIB IND MAX SCAN (2) TRIAL (TRI, SAMPLE, SAM, FREE)	AN, AB BIB, AB, CC, CT, ST ALL, delimited for post processing ALL, indented with text labels AN, TI, AU, MT, MO, ML, MD, SO, PY, MN, DT, LA, AB, CC, CT, ST AN, TI, AU, CS, NR, SO, PUI, CY, DT, LA, SL, ED (BIB is default) BIB, indented with text labels AN, CC, CT, ST ALL, including AUID TI, CT (random display without answer numbers) TI, CC, CT, ST	D ABS D 1-3 ALL D DALL D IALL D BIB D IBIB D IND D MAX D SCAN D TRI
HIT KWIC OCC	Hit term(s) and field(s) Up to 50 words before and after hit term(s) (KeyWord-In-Context) Number of occurrences of hit term(s) and field(s) in which they occur	D HIT D KWIC D OCC

(1) Custom display only.

(2) SCAN must be specified on the command line, i.e., D SCAN or DISPLAY SCAN.

SELECT, ANALYZE, and SORT Fields

The SELECT command is used to create E-numbers containing terms taken from the specified field in an answer set.

The ANALYZE command is used to create an L-number containing terms taken from the specified field in an answer set.

The SORT command is used to rearrange the search results in either alphabetic or numeric order of the specified field(s).

Field Name	Field Code	ANALYZE/ SELECT (1)	SORT
Abstract	AB	Y	N
Accession Number	AN	Y	N
Author	AU	Y (3)	Y
Author Identifier (ORCID)	AUID	Y	Y
Citation	CIT (RE)	Y (2, 3)	N
Classification Code	CC	Y	Y
CODEN	CODEN	N	Y
Controlled Term	CT	Y	N
Corporate Source (author affiliations, and email addresses)	CS	Y (3)	Y
Country of Publication	CY	Y	Y
Digital Object Identifier	FTDOI (DOI)	Y	Y
Document Type	DT (TC)	Y	Y
E-mail Address	EML	Y	Y
Entry Date	ED (UP)	Y	Y
International Standard Book Number	ISBN	N	Y
International Standard (Document) Number	ISN	Y (4)	Y
International Standard Serial Number	ISSN	N	Y
Journal Title	JT	Y	Y
Journal Title, Abbreviated	JTA	Y	Y
Journal Title, Full	JTF	Y	Y
Language	LA	Y	Y
Meeting Date	MD	Y	Y
Meeting Location	ML	Y	Y
Meeting Number	MN	Y	Y
Meeting Organizer	MO	Y	N
Meeting Title	MT	Y	Y
Number of Report	NR	Y	Y
Occurrence Count of Hit Terms	OCC	N	Y
Publication Date	PD	Y (3)	Y
Publisher	PB	Y	Y
Publisher Item Identifier	PUI	Y	Y
Publication Year	PY	Y (3)	Y
Reference Count	REC (RE.CNT)	Y	Y
Source	SO	Y (5)	N
Summary Language	SL	Y	Y
Supplementary Term	ST	Y	N
Title	TI	Y (default)	Y
Update Date	UP	Y	Y
Uniform Resource Locator	URL	Y	Y
Word Count, Title	WC.T	Y	Y

- (1) HIT may be used to restrict terms extracted to terms that match the search expression used to create the answer set, e.g., SEL HIT TI.
- (2) SELECT CIT or ANALYZE CIT allows you to extract the reference from the source documents in this database and have them automatically converted to a citation format for searching in SCISEARCH. SEL CIT selects first author, publication year, volume, first page, and a truncation symbol with /RE appended to the terms created by SELECT.
- (3) SELECT HIT and ANALYZE HIT are not valid with this field.
- (4) Selects or analyzes CODEN, ISBN, and ISSN with /ISN appended to the terms created by SELECT.
- (5) Selects or analyzes CODEN, ISBN, and ISSN with /SO appended to the terms created by SELECT.

Sample Records

DISPLAY BIB OF CONFERENCE

AN 2023-2014106797 COMPENDEX
TI Research on 3D model and terrain matching method based on the segment of linear coordinates
AU Yang Kelong(1); Huo Liang(1,2); Shen Tao(1,3); Geng Mingzhu(1); Li Miaolin(1); Zhang Xiaoyong(3)
Correspondence(s): Shen Tao(1)
CS (1)School of Geomatics and Urban Spatial Information, Beijing University of Civil Engineering and Architecture, Beijing, China, 100044
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(3)Chinese Academy of Fishery Sciences, Beijing, China, 100141
EMAIL: klong_y@163.com; huoliang@bucea.edu.cn; shentao@bucea.edu.cn; 2108160220004@stu.bucea.edu.cn; lml18845637125@163.com; zhangxiaoyong@cafs.ac.cn
SO Fourth International Conference on Geoscience and Remote Sensing Mapping, GRSM 2022; Proceedings of SPIE - The International Society for Optical Engineering (2023), Volume 12551, arn: 1255110, 11 refs.
Editor(s): Lohani Tarun Kumar
ISSN: 0277-786X E-ISSN: 1996-756X ISBN: 9781510662162
DOI: 10.1117/12.2668185
Published by: SPIE
Conference: 4th International Conference on Geoscience and Remote Sensing Mapping, GRSM 2022, Changchun, China, 4 Nov 2022 - 6 Nov 2022
Organizer(s): Academic Exchange Information Centre (AEIC)
URL (Document): <https://www.spiedigitallibrary.org/conference-proceedings-of-spie>
CY United States
DT Conference; (Conference Paper)
LA English
SL English
ED Entered STN: 22 May 2023
Last updated on STN: 22 May 2023

DISPLAY ALL OF JOURNAL

AN 2023-2014098891 COMPENDEX
TI The green approach of ZnO NPs and its Antioxidant, hemolytic, and photocatalytic activity and functionalized r-GO-ZnO for energy storage application
AU Meena Jayaprakash(1,2); Kumar Annamalai Senthil(1,2); Santhakumar K.(1); Pavithra G.(2); Anusha Dinakaran(2)
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EMAIL: ksanthakumar@vit.ac.in
SO Journal of Materials Science: Materials in Electronics (1 May 2023), Volume 34, Number 14, arn: 1131, 58 refs.
ISSN: 0957-4522 E-ISSN: 1573-482X
DOI: 10.1007/s10854-023-10373-2
Published by: Springer
URL (Document): <https://www.springer.com/journal/10854>
CY United States
DT Journal; Article
LA English

SL English
 ED Entered STN: 22 May 2023
 Last updated on STN: 22 May 2023
 AB The present paper describes the green synthesis of Zinc oxide nanoparticles (ZnO NPs) from the flowers of *L. nepetifolia*. Zinc oxide nanoparticles have gained more interest from researchers due to their wide applications from biological activity to energy storage system. The synthesis of ZnO nanoparticles and examined by using Ultraviolet-visible spectroscopy, Fourier Transform-Infrared spectroscopy, X-ray Diffraction analysis, Dynamic Light Scattering analysis, Raman spectroscopy, Scanning Electron Microscopy and Energy Dispersive X-ray spectroscopy, BET, XPS, Transmission Electron Microscopy, and Thermogravimetric Analysis. The photocatalytic studies were followed using methylene blue (MB) dye by ZnO nanoparticles by using sunlight as a source. The degradation of MB dye is found to be 90% within 70 min. Then the synthesized ZnO nanoparticles help to evaluate the antioxidant activities against Nitric oxide, Hydrogen peroxide, and DPPH free radicals. Moreover, the synthesized ZnO NPs show good biocompatibility nature, and the electrochemical analysis of reduced Graphene Oxide with Zinc oxide (rGO-ZnO) nanocomposite shows that the prepared rGO-ZnO nanocomposite has a high specific capacitance of about 667 F gsup-1 in comparison with the pure Zinc oxide nanoparticles (200 F gsup-1) and has good cycling stability over 1000 cycles.
 CC 461.6 Medicine and Pharmacology; 461.9.1 Immunology; 525.7 Energy Storage; 712.1 Semiconducting Materials; 741.3 Optical Devices and Systems; 761 Nanotechnology; 801 Chemistry; 801.4 Physical Chemistry; 802.2 Chemical Reactions; 803 Chemical Agents and Basic Industrial Chemicals; 804 Chemical Products Generally; 804.1 Organic Compounds; 804.2 Inorganic Compounds
 CT *High resolution transmission electron microscopy; Antioxidants; Aromatic compounds; Bioactivity; Biocompatibility; Energy storage; Fourier transform infrared spectroscopy; Free radicals; Graphene; II-VI semiconductors; Metal nanoparticles; Nitric oxide; Photocatalytic activity; Scanning electron microscopy; Spectrum analysis; Synthesis (chemical); Thermogravimetric analysis; X ray powder diffraction; ZnO nanoparticles
 ST Antioxidant activities; Functionalized; Hemolytic activity; Methylene blue dye; Photocatalytic activities; Reduced graphene oxides; Synthesised; Zinc oxide nanocomposites; Zinc oxide nanoparticles; ZnO nanoparticles

DISPLAY MAX

AN 2020-0508105270 COMPENDEX
 TI Exploring Disordered Morphologies of Blends and Block Copolymers for Light-Emitting Diodes with Mesoscopic Simulations
 AU Zhang Jianrui(1); Kremer Kurt(1); Michels Jasper J.(1); Daoulas Kostas Ch.(1)
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 SO Macromolecules (2020), 117 refs.
 ISSN: 0024-9297 E-ISSN: 1520-5835
 DOI: 10.1021/acs.macromol.9b02402
 Published by: American Chemical Society

URL (Document): <http://pubs.acs.org/journal/mamobx>
 CY United States
 DT Journal; Article
 LA English
 SL English
 ED Entered STN: 3 Feb 2020
 Last updated on STN: 3 Feb 2020
 AB Recently, disordered blends of semiconducting and insulating polymers have been used to prepare light-emitting diodes with increased luminous efficiency. Because the thermodynamic stability of the disordered phase in blends is limited, equivalent diblock copolymers (BCPs) could be an alternative. However, the choice between disordered blends and BCPs requires understanding structural differences and their effect on charge carrier transport. Using a hybrid mesoscopic model, we simulate blends and equivalent BCPs of two representative semiconducting and insulating polymers: poly(p-phenylene vinylene) (PPV) and polyacrylate. The immiscibility is varied to mimic annealing at different temperatures. We find stable or metastable disordered morphologies until we reach the mean-field (MF) spinodal. Disordered morphologies are heterogeneous because of thermal fluctuations and local segregation. Near the MF spinodal, segregation is stronger in BCPs than in the blends, even though the immiscibility, normalized by the MF spinodal, is the same. We link the spatial distribution of PPV with electric conductance. We predict that the immiscibility (temperature at which the layer is annealed) affects electrical percolation much stronger in BCPs than in blends. Differences in the local structure and percolation between blends and BCPs are enhanced at a high insulator content.
 CC 413 Insulating Materials; 641.1 Thermodynamics; 701.1 Electricity, Basic Concepts and Phenomena; 708.3 Superconducting Materials; 712.1 Semiconducting Materials; 714.2 Semiconductor Devices and Integrated Circuits; 803 Chemical Agents and Basic Industrial Chemicals; 815.1 Polymeric Materials
 CT *Light emitting diodes; Block copolymers; Carrier transport; Insulating materials; Semiconducting polymers; Solvents; Superconducting materials; Thermodynamic stability
 ST Electrical percolation; Insulating polymer; Luminous efficiency; Mesoscopic modelling; Mesoscopic simulation; Poly-p-phenylenevinylene; Structural differences; Thermal fluctuations

=> E RAILROAD TRACKS+ALL/CT

E1	1261	BT2	Facilities/CT
E2	6379	BT2	Railroads/CT
E3	3341	BT1	Railroad plant and structures/CT
E4	3439	-->	Railroad tracks/CT
		DA	January 1993
E5	0	UF	Tracks (railroad)/CT
E6	301	OLD	Railroad plant and structures:Track/CT
E7	38	OLD	Railroad plant and structures:Track inspection/CT
E8	102	NT1	Railroad ties/CT
E9	66	NT1	Railroad track switches/CT
E10	348	RT	Ballast (railroad track)/CT
E11	270	RT	Rail laying/CT
E12	3691	RT	Rails/CT
E13	55	RT	Track test cars/CT
E14	0	CC	681.1/CT
***** END *****			

=> E AUSSENVERKLEIDUNG+ALL/CTDE

E1	4939	BT3	EN Structures (built objects)/CTDE
E2	0		DE Bauwerke (erbaute Objekte)/CTDE
E3	30967	BT2	EN Buildings/CTDE
E4	0		DE Gebaeude/CTDE
E5	422	BT1	EN Building components/CTDE
E6	0		DE Gebaeudeteile/CTDE
E7	212		EN Facings/CTDE
E8	0	-->	DE Aussenverkleidung/CTDE
		DA	EN January 1993
			DE Januar 1993
E9	63	OLD	EN Buildings:Facings/CTDE
E10	603	RT	EN Facades/CTDE
E11	0		DE Fassaden/CTDE
E12	142	RT	EN Revetments/CTDE
E13	0		DE Verkleidungen/CTDE
E14	401	RT	EN Veneers/CTDE
E15	0		DE Furniere/CTDE
E16	0	CC	EN 402/CTDE
E17	0	CC	EN 408.2/CTDE

***** END *****

In North America

CAS Customer Center:
P.O. Box 3012
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