Thomas E Graedel

List of Publications by Year
in descending order

272	21,123	6233 80	11581 135
papers	citations	h-index	g-index

288	288	288	12851
all docs	docs citations	times ranked	citing authors

#	Article	IF	Citations
1	Challenges in Metal Recycling. Science, 2012, 337, 690-695.	6.0	569
2	Criticality of metals and metalloids. Proceedings of the National Academy of Sciences of the United States of America, 2015, 112, 4257-4262.	3.3	505
3	Metal stocks and sustainability. Proceedings of the National Academy of Sciences of the United States of America, 2006, 103, 1209-1214.	3.3	499
4	What Do We Know About Metal Recycling Rates?. Journal of Industrial Ecology, 2011, 15, 355-366.	2.8	476
5	Global gridded inventories of anthropogenic emissions of sulfur and nitrogen. Journal of Geophysical Research, 1996, 101, 29239-29253.	3.3	472
6	Methodology of Metal Criticality Determination. Environmental Science & Technology, 2012, 46, 1063-1070.	4.6	444
7	Buildings as a global carbon sink. Nature Sustainability, 2020, 3, 269-276.	11.5	419
8	Organic films on atmospheric aerosol particles, fog droplets, cloud droplets, raindrops, and snowflakes. Reviews of Geophysics, 1983, 21, 903-920.	9.0	393
9	Chemistry within aqueous atmospheric aerosols and raindrops. Reviews of Geophysics, 1981, 19, 505-539.	9.0	362
10	On the materials basis of modern society. Proceedings of the National Academy of Sciences of the United States of America, 2015, 112, 6295-6300.	3.3	346
11	Global In-Use Stocks of the Rare Earth Elements: A First Estimate. Environmental Science & Technology, 2011, 45, 4096-4101.	4.6	342
12	Composite global emissions of reactive chlorine from anthropogenic and natural sources: Reactive Chlorine Emissions Inventory. Journal of Geophysical Research, 1999, 104, 8429-8440.	3.3	311
13	Criticality of Non-Fuel Minerals: A Review of Major Approaches and Analyses. Environmental Science & Technology, 2011, 45, 7620-7630.	4.6	309
14	Corrosion Mechanisms for Silver Exposed to the Atmosphere. Journal of the Electrochemical Society, 1992, 139, 1963-1970.	1.3	296
15	The kinetic chemistry of dense interstellar clouds. Astrophysical Journal, Supplement Series, 1982, 48, 321.	3.0	280
16	Tropospheric budget of reactive chlorine. Global Biogeochemical Cycles, 1995, 9, 47-77.	1.9	277
17	Industrial ecology: concepts and approaches.. Proceedings of the National Academy of Sciences of the United States of America, 1992, 89, 793-797.	3.3	272
18	Copper demand, supply, and associated energy use to 2050. Global Environmental Change, 2016, 39, 305-315.	3.6	272

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19	Corrosion Mechanisms for Zinc Exposed to the Atmosphere. Journal of the Electrochemical Society, 1989, 136, 193C-203C.	1.3	252
20	Forging the Anthropogenic Iron Cycle. Environmental Science & Technology, 2007, 41, 5120-5129.	4.6	251
21	Multilevel Cycle of Anthropogenic Copper. Environmental Science & Technology, 2004, 38, 1242-1252.	4.6	248
22	By-product metals are technologically essential but have problematic supply. Science Advances, 2015, 1, e1400180.	4.7	229
23	Exploring the engine of anthropogenic iron cycles. Proceedings of the National Academy of Sciences of the United States of America, 2006, 103, 16111-16116.	3.3	226
24	Kinetic model studies of atmospheric droplet chemistry: 2. Homogeneous transition metal chemistry in raindrops. Journal of Geophysical Research, 1986, 91, 5205-5221.	3.3	223
25	ON THE CONCEPT OF INDUSTRIAL ECOLOGY. Annual Review of Environment and Resources, 1996, 21, 69-98.	1.2	213
26	Copper patinas formed in the atmosphereâ€"I. Introduction. Corrosion Science, 1987, 27, 639-657.	3.0	207
27	Anthropogenic Cycles of the Elements: A Critical Review. Environmental Science & Technology, 2012, 46, 8574-8586.	4.6	207
28	A half-century of global phosphorus flows, stocks, production, consumption, recycling, and environmental impacts. Global Environmental Change, 2016, 36, 139-152.	3.6	202
29	The corrosion of silver by atmospheric sulfurous gases. Corrosion Science, 1985, 25, 133-143.	3.0	200
30	Anthropogenic Nickel Cycle: Insights into Use, Trade, and Recycling. Environmental Science & Technology, 2008, 42, 3394-3400.	4.6	199
31	Sunday and Workday Variations in Photochemical Air Pollutants in New Jersey and New York. Science, 1974, 186, 1037-1038.	6.0	194
32	The Contemporary Anthropogenic Chromium Cycle. Environmental Science & Technology, 2006, 40, 7060-7069.	4.6	191
33	In-Use Stocks of Metals: Status and Implications. Environmental Science & Technology, 2008, 42, 7038-7045.	4.6	186
34	Global Rare Earth In-Use Stocks in NdFeB Permanent Magnets. Journal of Industrial Ecology, 2011, 15, 836-843.	2.8	179
35	Twentieth century copper stocks and flows in North America: A dynamic analysis. Ecological Economics, 2005, 54, 37-51.	2.9	178
36	Dynamic analysis of the global metals flows and stocks in electricity generation technologies. Journal of Cleaner Production, 2013, 59, 260-273.	4.6	176

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37	On the mechanism of silver and copper sulfidation by atmospheric H2S and OCS. Corrosion Science, 1985, 25, 1163-1180.	3.0	170
38	Resource Demand Scenarios for the Major Metals. Environmental Science & Technology, 2018, 52, 2491-2497.	4.6	169
39	Criticality of the Rare Earth Elements. Journal of Industrial Ecology, 2015, 19, 1044-1054.	2.8	165
40	Global emissions of hydrogen chloride and chloromethane from coal combustion, incineration and industrial activities: Reactive Chlorine Emissions Inventory. Journal of Geophysical Research, 1999, 104, 8391-8403.	3.3	162
41	Lost by Design. Environmental Science & Technology, 2015, 49, 9443-9451.	4.6	159
42	The contemporary European copper cycle: waste management subsystem. Ecological Economics, 2002, 42, 43-57.	2.9	156
43	Kinetic studies of raindrop chemistry: 1. Inorganic and organic processes. Journal of Geophysical Research, 1983, 88, 10865-10882.	3.3	152
44	Corrosion Mechanisms for Aluminum Exposed to the Atmosphere. Journal of the Electrochemical Society, 1989, 136, 204C-212C.	1.3	147
45	Speciation, photosensitivity, and reactions of transition metal ions in atmospheric droplets. Journal of Geophysical Research, 1986, 91, 5189-5204.	3.3	146
46	The energy benefit of stainless steel recycling. Energy Policy, 2008, 36, 181-192.	4.2	143
47	Silver Emissions and their Environmental Impacts:â€‰ A Multilevel Assessment. Environmental Science & Technology, 2007, 41, 6283-6289.	4.6	142
48	Criticality of the Geological Copper Family. Environmental Science & Technology, 2012, 46, 1071-1078.	4.6	142
49	Copper patinas formed in the atmosphereâ€"II. A qualitative assessment of mechanisms. Corrosion Science, 1987, 27, 721-740.	3.0	136
50	On the Future Availability of the Energy Metals. Annual Review of Materials Research, 2011, 41, 323-335.	4.3	135
51	Material Flow Analysis from Origin to Evolution. Environmental Science & Technology, 2019, 53, 12188-12196.	4.6	134
52	Corrosion Mechanisms for Iron and Low Alloy Steels Exposed to the Atmosphere. Journal of the Electrochemical Society, 1990, 137, 2385-2394.	1.3	131
53	In-use product stocks link manufactured capital to natural capital. Proceedings of the National Academy of Sciences of the United States of America, 2015, 112, 6265-6270.	3.3	131
54	ELEMENTAL CYCLES: A Status Report on Human or Natural Dominance. Annual Review of Environment and Resources, 2004, 29, 69-107.	5.6	130

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55	Quantifying the recoverable resources of by-product metals: The case of cobalt. Ore Geology Reviews, 2013, 55, 87-98.	1.1	130
56	Terpenoids in the atmosphere. Reviews of Geophysics, 1979, 17, 937-947.	9.0	127
57	Matrix Approaches to Abridged Life Cycle Assessment. Environmental Science & Technology, 1995, 29, 134A-139A.	4.6	126
58	Industrial Ecosystems as Food Webs. Journal of Industrial Ecology, 2002, 6, 29-38.	2.8	120
59	Dining at the Periodic Table:Â Metals Concentrations as They Relate to Recycling. Environmental Science & Technology, 2007, 41, 1759-1765.	4.6	119
60	The contemporary European copper cycle: The characterization of technological copper cycles. Ecological Economics, 2002, 42, 9-26.	2.9	116
61	A compilation of inventories of emissions to the atmosphere. Global Biogeochemical Cycles, 1993, 7, 1-26.	1.9	115
62	Dynamic analysis of aluminum stocks and flows in the United States: 1900â€"2009. Ecological Economics, 2012, 81, 92-102.	2.9	115
63	Uncovering the end uses of the rare earth elements. Science of the Total Environment, 2013, 461-462, 781-784.	3.9	114
64	The contemporary European copper cycle: 1 year stocks and flows. Ecological Economics, 2002, 42, 27-42.	2.9	110
65	Influence of transition metal complexes on atmospheric droplet acidity. Nature, 1985, 317, 240-242.	13.7	107
66	The Multilevel Cycle of Anthropogenic Zinc. Journal of Industrial Ecology, 2005, 9, 67-90.	2.8	107
67	Contemporary Anthropogenic Silver Cycle:Â A Multilevel Analysis. Environmental Science & Technology, 2005, 39, 4655-4665.	4.6	104
68	Six Years of Criticality Assessments: What Have We Learned So Far?. Journal of Industrial Ecology, 2016, 20, 692-699.	2.8	103
69	Industrial Ecology: The role of manufactured capital in sustainability. Proceedings of the National Academy of Sciences of the United States of America, 2015, 112, 6260-6264.	3.3	98
70	Uncovering the Global Life Cycles of the Rare Earth Elements. Scientific Reports, 2011, 1, 145.	1.6	97
71	Tracking the Metal of the Goblins: Cobaltâ€™s Cycle of Use. Environmental Science & Technology, 2012, 46, 1079-1086.	4.6	95
72	The homogeneous chemistry of atmospheric sulfur. Reviews of Geophysics, 1977, 15, 421-428.	9.0	94

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73	The Budget and Cycle of Earth's Natural Chlorine. Pure and Applied Chemistry, 1996, 68, 1689-1697.	0.9	90
74	The contemporary European copper cycle: statistical entropy analysis. Ecological Economics, 2002, 42, 59-72.	2.9	90
75	The potential for mining trace elements from phosphate rock. Journal of Cleaner Production, 2015, 91, 337-346.	4.6	90
76	The omnivorous diet of modern technology. Resources, Conservation and Recycling, 2013, 74, 1-7.	5.3	89
77	Criticality of Iron and Its Principal Alloying Elements. Environmental Science & Technology, 2014, 48, 4171-4177.	4.6	87
78	Kinetic studies of the photochemistry of the urban troposphere. Atmospheric Environment, 1976, 10, 1095-1116.	1.1	86
79	The characterization of patina components by X-ray diffraction and evolved gas analysis. Corrosion Science, 1987, 27, 669-684.	3.0	86
80	Dysprosium, the balance problem, and wind power technology. Applied Energy, 2014, 136, 548-559.	5.1	84
81	United States plastics: Large flows, short lifetimes, and negligible recycling. Resources, Conservation and Recycling, 2021, 167, 105440.	5.3	84
82	Getting Serious about Sustainability. Environmental Science & Technology, 2002, 36, 523-529.	4.6	79
83	The characterization of technological zinc cycles. Resources, Conservation and Recycling, 2003, 39, 107-135.	5.3	79
84	Spatial characterisation of multi-level in-use copper and zinc stocks in Australia. Journal of Cleaner Production, 2007, 15, 849-861.	4.6	79
85	Metal spectra as indicators of development. Proceedings of the National Academy of Sciences of the United States of America, 2010, 107, 20905-20910.	3.3	78
86	Anthropogenic nickel supply, demand, and associated energy and water use. Resources, Conservation and Recycling, 2017, 125, 300-307.	5.3	76
87	Impact of the establishment of US offshore wind power on neodymium flows. Nature Sustainability, 2019, 2, 332-338.	11.5	74
88	Copper Mines Above and Below the Ground. Environmental Science & Technology, 2006, 40, 3135-3141.	4.6	73
89	Photochemical Air Pollution in the Northeast United States. Science, 1979, 204, 1273-1278.	6.0	72
90	Reduced sulfur emission from the open oceans. Geophysical Research Letters, 1979, 6, 329-331.	1.5	68

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91	Anthropogenic emissions of trichloromethane (chloroform, CHCl3) and chlorodifluoromethane (HCFC-22): Reactive Chlorine Emissions Inventory. Journal of Geophysical Research, 1999, 104, 8405-8415.	3.3	68
92	Global Stainless Steel Cycle Exemplifies Chinaâ€™s Rise to Metal Dominance. Environmental Science & Technology, 2010, 44, 3940-3946.	4.6	66
93	Criticality of the Geological Zinc, Tin, and Lead Family. Journal of Industrial Ecology, 2015, 19, 628-644.	2.8	66
94	Degradation of materials in the atmosphere. Environmental Science & Technology, 1986, 20, 1093-1100.	4.6	65
95	Gildes model studies of aqueous chemistry. I. Formulation and potential applications of the multi-regime model. Corrosion Science, 1996, 38, 2153-2180.	3.0	65
96	Exploratory data analysis in the geophysical sciences. Reviews of Geophysics, 1980, 18, 699-717.	9.0	64
97	The reaction of simulated rain with copper, copper patina, and some copper compounds. Corrosion Science, 1987, 27, 703-719.	3.0	64
98	The multilevel cycle of anthropogenic lead. Resources, Conservation and Recycling, 2008, 52, 1050-1057.	5.3	64
99	Global Emissions and Models of Photochemically Active Compounds. , 1994, , 223-247.		63
100	Implications of Emerging Vehicle Technologies on Rare Earth Supply and Demand in the United States. Resources, 2018, 7, 9.	1.6	60
101	Copper patinas formed in the atmosphereâ€"III. A semi-quantitative assessment of rates and constraints in the greater New York metropolitan area. Corrosion Science, 1987, 27, 741-769.	3.0	59
102	Solar cell metals and their hosts: A tale of oversupply and undersupply. Applied Energy, 2015, 158, 167-177.	5.1	59
103	The contemporary European zinc cycle: 1-year stocks and flows. Resources, Conservation and Recycling, 2003, 39, 137-160.	5.3	57
104	The role of design in circular economy solutions for critical materials. One Earth, 2021, 4, 353-362.	3.6	57
105	Exploring future copper demand, recycling and associated greenhouse gas emissions in the EU-28. Global Environmental Change, 2020, 63, 102093.	3.6	56
106	Corrosion Mechanisms for Nickel Exposed to the Atmosphere. Journal of the Electrochemical Society, 2000, 147, 1010.	1.3	55
107	On the possible increase of the atmospheric methane and carbon monoxide concentrations during the last decade. Geophysical Research Letters, 1980, 7, 977-979.	1.5	54
108	Global anthropogenic tellurium cycles for 1940â€"2010. Resources, Conservation and Recycling, 2013, 76, 21-26.	5.3	53

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109	The kinetic photochemistry of the marine atmosphere. Journal of Geophysical Research, 1979, 84, 273-286.	3.3	52
110	On the sustainability of metal supplies: A response to Tilton and Lagos. Resources Policy, 2007, 32, 24-28.	4.2	52
111	Metal Dissipation and Inefficient Recycling Intensify Climate Forcing. Environmental Science & Technology, 2016, 50, 11394-11402.	4.6	51
112	Ozone Concentrations in New Jersey and New York: Statistical Association with Related Variables. Science, 1974, 186, 257-259.	6.0	50
113	Carbonyl Sulfide: Potential Agent of Atmospheric Sulfur Corrosion. Science, 1981, 212, 663-665.	6.0	49
114	Where has all the copper gone: The stocks and flows project, part 1. Jom, 2002, 54, 21-26.	0.9	49
115	The corrosion of copper by atmospheric sulphurous gases. Corrosion Science, 1983, 23, 1141-1152.	3.0	48
116	Atmospheric formic acid from formicine ants: a preliminary assessment. Tellus, Series B: Chemical and Physical Meteorology, 1988, 40B, 335-339.	0.8	47
117	Statistical analysis of Salmonella test data and comparison to results of animal cancer tests. Mutation Research - Genetic Toxicology Testing and Biomonitoring of Environmental Or Occupational Exposure, 1988, 205, 183-195.	1.2	47
118	Aluminium in-use stocks in the state of Connecticut. Resources, Conservation and Recycling, 2008, 52, 1271-1282.	5.3	47
119	Will metal scarcity impede routine industrial use?. MRS Bulletin, 2012, 37, 325-331.	1.7	47
120	Life cycle carbon benefits of aerospace alloy recycling. Journal of Cleaner Production, 2014, 80, 38-45.	4.6	46
121	Deriving the Metal and Alloy Networks of Modern Technology. Environmental Science & Technology, 2016, 50, 4082-4090.	4.6	46
122	Lead Inâ€Use Stock. Journal of Industrial Ecology, 2009, 13, 112-126.	2.8	45
123	Global anthropogenic selenium cycles for 1940â€"2010. Resources, Conservation and Recycling, 2013, 73, 17-22.	5.3	45
124	Urban formaldehyde: Observed correlation with source emissions and photochemistry. Atmospheric Environment, 1977, 11, 357-360.	1.1	44
125	Exploratory Data Analysis of the Multilevel Anthropogenic Copper Cycle. Environmental Science & Technology, 2004, 38, 1253-1261.	4.6	44
126	The multilevel cycle of anthropogenic lead. Resources, Conservation and Recycling, 2008, 52, 1058-1064.	5.3	44

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127	Building the Material Flow Networks of Aluminum in the 2007 U.S. Economy. Environmental Science & Technology, 2016, 50, 3905-3912.	4.6	44
128	Field measurements of submicron aerosol washout by snow. Geophysical Research Letters, 1975, 2, 325-328.	1.5	43
129	Industrial ecology: a teenagerâ€™s progress. Technology in Society, 2004, 26, 433-445.	4.8	43
130	Exploring the Global Journey of Nickel with Markov Chain Models. Journal of Industrial Ecology, 2012, 16, 334-342.	2.8	42
131	Gildes model studies of aqueous chemistry. III. Initial SO2-induced atmospheric corrosion of copper. Corrosion Science, 1996, 38, 2201-2224.	3.0	41
132	Earth's anthrobiogeochemical copper cycle. Global Biogeochemical Cycles, 2007, 21, n/a-n/a.	1.9	41
133	Life-Cycle Assessment in the Service Industries. Journal of Industrial Ecology, 1997, 1, 57-70.	2.8	40
134	The contemporary European silver cycle. Resources, Conservation and Recycling, 2006, 46, 27-43.	5.3	39
135	Metal capital sustaining a North American city: Iron and copper in New Haven, CT. Resources, Conservation and Recycling, 2007, 49, 406-420.	5.3	39
136	Mapping supply chain risk by network analysis of product platforms. Sustainable Materials and Technologies, 2016, 10, 14-22.	1.7	39
137	Toward Financially Viable Phytoextraction and Production of Plant-Based Palladium Catalysts. Environmental Science & Technology, 2017, 51, 2992-3000.	4.6	38
138	The criticality of four nuclear energy metals. Resources, Conservation and Recycling, 2015, 95, 193-201.	5.3	37
139	Structural Investigation of Aluminum in the U.S. Economy using Network Analysis. Environmental Science & Technology, 2016, 50, 4091-4101.	4.6	37
140	Refining the understanding of China's tungsten dominance with dynamic material cycle analysis. Resources, Conservation and Recycling, 2020, 158, 104829.	5.3	37
141	Gildes model studies of aqueous chemistry. II. The corrosion of zinc in gaseous exposure chambers. Corrosion Science, 1996, 38, 2181-2199.	3.0	36
142	Quantitative guidelines for urban sustainability. Technology in Society, 2006, 28, 45-61.	4.8	36
143	The contemporary Latin American and Caribbean copper cycle: 1 year stocks and flows. Resources, Conservation and Recycling, 2004, 41, 23-46.	5.3	35
144	Losses to the environment from the multilevel cycle of anthropogenic lead. Environmental Pollution, 2009, 157, 2670-2677.	3.7	35

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145	The contemporary copper cycle of Asia. Journal of Material Cycles and Waste Management, 2003, 5, 143-156.	1.6	34
146	Early solar mass loss: A potential solution to the weak sun paradox. Geophysical Research Letters, 1991, 18, 1881-1884.	1.5	33
147	Anthropogenic metal cycles in China. Journal of Material Cycles and Waste Management, 2008, 10, 188-197.	1.6	33
148	Criticality of Seven Specialty Metals. Journal of Industrial Ecology, 2016, 20, 837-853.	2.8	33
149	Photochemistry of the "Sunday Effect". Environmental Science & Technology, 1977, 11, 690-694.	4.6	31
150	â€œBottomâ€"upâ€•study of in-use nickel stocks in New Haven, CT. Resources, Conservation and Recycling, 2007, 50, 58-70.	5.3	31
151	Improved Alternatives for Estimating In-Use Material Stocks. Environmental Science & Technology, 2015, 49, 3048-3055.	4.6	31
152	Hierarchical metrics for sustainability. Environmental Quality Management, 2002, 12, 21-30.	1.0	30
153	Employing Considerations of Criticality in Product Design. Jom, 2014, 66, 2360-2366.	0.9	30
154	Alloy information helps prioritize material criticality lists. Nature Communications, 2022, 13, 150.	5.8	30
155	Peer Reviewed: The Evolution of Industrial Ecology. Environmental Science & Technology, 2000, 34, 28A-31A.	4.6	29
156	The Atmospheric Sulfidation of Copper Single Crystals. Journal of the Electrochemical Society, 1987, 134, 1632-1635.	1.3	28
157	Global emissions inventories of acid-related compounds. Water, Air, and Soil Pollution, 1995, 85, 25-36.	1.1	28
158	Illuminating Tungstenâ€™s Life Cycle in the United States: 1975â€"2000. Environmental Science & Technology, 2008, 42, 3835-3842.	4.6	28
159	Graphical Presentation of Results from Scientific Computer Models. Science, 1982, 215, 1191-1198.	6.0	27
160	Ozone- and Photon-Enhanced Atmospheric Sulfidation of Copper. Science, 1984, 224, 599-601.	6.0	27
161	Aluminum in-use stocks in China: a bottom-up study. Journal of Material Cycles and Waste Management, 2010, 12, 66-82.	1.6	27
162	Green Product Design. At&T Technical Journal, 1995, 74, 17-25.	0.4	26

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163	Research Issues in Sustainable Consumption:Â Toward an Analytical Framework for Materials and the Environment. Environmental Science & Technology, 2003, 37, 5383-5388.	4.6	26
164	Copper and zinc recycling in Australia: potential quantities and policy options. Journal of Cleaner Production, 2007, 15, 862-877.	4.6	26
165	Explanatory Variables for per Capita Stocks and Flows of Copper and Zinc. Journal of Industrial Ecology, 2008, 10, 111-132.	2.8	26
166	The rise and fall of American lithium. Resources, Conservation and Recycling, 2020, 162, 105034.	5.3	26
167	Mechanisms for the Atmospheric Corrosion of Carbonate Stone. Journal of the Electrochemical Society, 2000, 147, 1006.	1.3	25
168	Global Human Appropriation of Net Primary Production and Associated Resource Decoupling: 2010â€"2050. Environmental Science & Technology, 2018, 52, 1208-1215.	4.6	25
169	On the Spatial Dimension of the Circular Economy. Resources, 2019, 8, 32.	1.6	25
170	Potential Corrosion of Metals by Atmospheric Organic Acids. Journal of the Electrochemical Society, 1986, 133, 452-453.	1.3	24
171	Quantitative sustainability in a college or university setting. International Journal of Sustainability in Higher Education, 2002, 3, 346-358.	1.6	24
172	Regional development or resource preservation? A perspective from Japanese appliance exports. Ecological Economics, 2011, 70, 788-797.	2.9	23
173	How â€œblack swanâ€•disruptions impact minor metals. Resources Policy, 2017, 54, 88-96.	4.2	23
174	Making Metals Count: Applications of Material Flow Analysis. Environmental Engineering Science, 2006, 23, 493-506.	0.8	22
175	The oxidation of ammonia, hydrogen sulfide, and methane in nonurban tropospheres. Journal of Geophysical Research, 1977, 82, 5917-5922.	3.3	21
176	Carbon dioxide in the urban atmosphere: Dependencies and trends. Journal of Geophysical Research, 1979, 84, 5011-5017.	3.3	21
177	Material substitution: a resource supply perspective. Resources, Conservation and Recycling, 2002, 34, 107-115.	5.3	21
178	The â€œHiddenâ€•Trade of Metals in the United States. Journal of Industrial Ecology, 2008, 12, 739-753.	2.8	21
179	Metal Criticality Determination for Australia, the US, and the Planetâ€"Comparing 2008 and 2012 Results. Resources, 2016, 5, 29.	1.6	21
180	Should we mine the deep seafloor?. Earth's Future, 2017, 5, 655-658.	2.4	21

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181	On the corrosion resistance of certain ancient chinese bronze artifacts. Corrosion Science, 1983, 23, 241-250.	3.0	20
182	Atmospheric Sulfidation of Copper Alloys: I . Brasses and Bronzes. Journal of the Electrochemical Society, 1984, 131, 505-511.	1.3	20
183	Corrosionâ€Related Aspects of the Chemistry and Frequency of Occurrence of Precipitation. Journal of the Electrochemical Society, 1986, 133, 2476-2482.	1.3	19
184	Green Chemistry and Sustainable Development. , 0, , 56-61.		19
185	Quantifying the potential for recoverable resources of gallium, germanium and antimony as companion metals in Australia. Ore Geology Reviews, 2017, 82, 148-159.	1.1	19
186	Grand Challenges in Metal Life Cycles. Natural Resources Research, 2018, 27, 181-190.	2.2	19
187	Uncertain Future of American Lithium: A Perspective until 2050. Environmental Science & Technology, 2021, 55, 16184-16194.	4.6	19
188	Preface [to special section on Reactive Chlorine Emissions Inventory (RCEI)]. Journal of Geophysical Research, 1999, 104, 8331-8332.	3.3	18
189	â€œConditioned Airâ€•â€‰ Evaluating an Environmentally Preferable Service. Environmental Science & Technology, 2000, 34, 541-545.	4.6	18
190	The contemporary Asian silver cycle: 1-year stocks and flows. Journal of Material Cycles and Waste Management, 2005, 7, 93-103.	1.6	18
191	Phytoextraction as a tool for green chemistry. Green Processing and Synthesis, 2014, 3, .	1.3	17
192	YSTAFDB, a unified database of material stocks and flows for sustainability science. Scientific Data, 2019, 6, 84.	2.4	17
193	Green chemistry as systems science. Pure and Applied Chemistry, 2001, 73, 1243-1246.	0.9	16
194	Sulfur dioxide, sulfate aerosol, and urban ozone. Geophysical Research Letters, 1976, 3, 181-184.	1.5	15
195	Urban kinetic chemical calculations with altered source conditions. Atmospheric Environment, 1978, 12, 1403-1412.	1.1	15
196	2-D studies of the kinetic photochemistry of the urban troposphere. I. Air stagnation conditions. Atmospheric Environment, 1981, 15, 163-176.	1.1	15
197	Where is all the zinc going: The stocks and flows project, Part 2. Jom, 2004, 56, 24-29.	0.9	15
198	Assessing the Reliability of Material Flow Analysis Results: The Cases of Rhenium, Gallium, and Germanium in the United States Economy. Environmental Science & Technology, 2017, 51, 11839-11847.	4.6	15

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199	Analyzing critical material demand: A revised approach. Science of the Total Environment, 2018, 630, 1143-1148.	3.9	15
200	Unified Materials Information System (UMIS): An Integrated Material Stocks and Flows Data Structure. Journal of Industrial Ecology, 2019, 23, 222-240.	2.8	15
201	Industrial Ecologyâ€™s First Decade. , 2016, , 3-20.		15
202	Measurements of extreme concentrations of tropospheric hydrogen sulfide. Journal of Geophysical Research, 1974, 79, 4467-4473.	3.3	14
203	Improving the overall environmental performance of existing telecommunications facilities. International Journal of Life Cycle Assessment, 2002, 7, 219-224.	2.2	14
204	Channel width determination and electronic pulse processing losses in optical particle counters. Journal of Aerosol Science, 1974, 5, 125-131.	1.8	13
205	The contemporary Latin America and the Caribbean zinc cycle: One year stocks and flows. Resources, Conservation and Recycling, 2006, 47, 82-100.	5.3	13
206	Quantifying the Recoverable Resources of Companion Metals: A Preliminary Study of Australian Mineral Resources. Resources, 2014, 3, 657-671.	1.6	13
207	The criticality of metals: a perspective for geologists. Geological Society Special Publication, 2015, 393, 291-302.	0.8	13
208	Comparative analysis of metals use in the United States economy. Resources, Conservation and Recycling, 2019, 145, 448-456.	5.3	13
209	Atmospheric Sulfidation of Copper Alloys: II . Alloys with Nickel and Tin. Journal of the Electrochemical Society, 1984, 131, 511-515.	1.3	12
210	Global emissions inventories to aid atmospheric modelers. Eos, 1994, 75, 585.	0.1	11
211	U.S. Cobalt: A Cycle of Diverse and Important Uses. Resources, Conservation and Recycling, 2022, 184, 106441.	5.3	11
212	Life cycle and matrix analyses for re-refined Oil in Japan. International Journal of Life Cycle Assessment, 2002, 7, 95-102.	2.2	10
213	The copper cycles of European countries. Regional Environmental Change, 2003, 3, 119-127.	1.4	10
214	Measurements and models of indoor aerosol size spectra. Atmospheric Environment, 1973, 7, 827-842.	1.1	9
215	Inhibition of copper sulphidation by boron implantation. Corrosion Science, 1981, 21, 541-545.	3.0	9
216	2-D Studies of the kinetic photochemistry of the urban troposphereâ€"II. Normal convective conditions. Atmospheric Environment, 1981, 15, 353-361.	1.1	9

#	Article	IF	Citations
217	Corrosive Effects of Mixtures of Pollutants. Journal of the Air Pollution Control Association, 1985, 35, 644-648.	0.5	9
218	The Kuwait Environment and Its Effects on Electronic Materials and Components. Journal of the Electrochemical Society, 1992, 139, 2058-2066.	1.3	9
219	Multilevel Anthropogenic Cycles of Copper and Zinc: A Comparative Statistical Analysis. Journal of Industrial Ecology, 2008, 10, 89-110.	2.8	9
220	Atmospheric aerosol size spectra: Rapid concentration fluctuations and bimodality. Journal of Geophysical Research, 1974, 79, 5643-5645.	3.3	8
221	Photochemistry in planetary atmospheres. Eos, 1981, 62, 1177.	0.1	8
222	Total organic component data: A study of urban atmospheric patterns and trends. Atmospheric Environment, 1982, 16, 1119-1132.	1.1	8
223	Exploratory Data Analysis of the Multilevel Anthropogenic Zinc Cycle. Journal of Industrial Ecology, 2005, 9, 91-108.	2.8	8
224	The Photochemistry of the Troposphere. , 1985, , 39-76.		8
225	Greening the Service Industries. Service Industries Journal, 2003, 23, 48-64.	5.0	7
226	Case studies in quantitative urban sustainability. Technology in Society, 2006, 28, 105-123.	4.8	7
227	The Hawaiian Islands: Conceptualizing an Industrial Ecology Holarchic System. Sustainability, 2020, 12, 3104.	1.6	7
228	Alloy Profusion, Spice Metals, and Resource Loss by Design. Sustainability, 2022, 14, 7535.	1.6	7
229	Tropospheric halocarbons: Estimates of atmospheric chemical production. Atmospheric Environment, 1976, 10, 385-388.	1.1	6
230	The interaction of hydrogen sulfide with lead- and bariumâ€“cadmiumâ€“zinc-stabilized poly(vinyl) Tj ETQq0 0 0 rgBT /Overlock 10 Tf 50	1.3	6
231	Genetic activity profiles in the testing and evaluation of chemical mixtures. Teratogenesis, Carcinogenesis, and Mutagenesis, 1990, 10, 147-164.	0.8	6
232	The Impact of Environmental Issues on Materials and Processes. At&T Technical Journal, 1990, 69, 129-140.	0.4	6
233	The contemporary Oceania zinc cycle: one-year stocks and flows. Journal of Material Cycles and Waste Management, 2004, 6, 125.	1.6	6
234	Industrial Ecology. , 2015, , 843-853.		6

#	Article	IF	Citations
235	Criticality in Bulk Metallic Glass Constituent Elements. Jom, 2017, 69, 2156-2163.	0.9	6
236	Aqueous Chemistry in the Atmosphere. , 1982, , 93-118.		6
237	Theoretical limitations on heterogeneous catalysis by transition metals in aqueous atmospheric aerosols. Geophysical Monograph Series, 1982, , 196-203.	0.1	5
238	Conductive silver-epoxy pastes: characteristics of alternative formulations. Journal of Materials Science, 1984, 19, 3281-3286.	1.7	5
239	Sulfidation under atmospheric conditions of Cu-Ni, Cu-Sn, and Cu-Zn binary and Cu-Ni-Sn and Cu-Ni-Zn ternary systems. Metallurgical and Materials Transactions A - Physical Metallurgy and Materials Science, 1985, 16, 275-284.	1.4	5
240	On the Involvement of â€‰Hâ€‰2â€‰Oâ€‰2 and â€‰SOâ€‰2 in the Atmospheric Corrosion of Steel. Journal of the Electrochemical Society, 1988, 135, 1035-1036.	1.3	5
241	Regional and GlobalImpactson theBiosphere. Environment, 1989, 31, 8-41.	0.8	5
242	Chemical insights into the interactions of the atmosphere with metals. Marine Chemistry, 1990, 30, 123-146.	0.9	5
243	Kinetic photochemistry downwind over water from urban areas. Journal of Geophysical Research, 1977, 82, 4943-4946.	3.3	4
244	The morphology and corrosion resistance of a conductive silver-epoxy paste. Journal of Materials Science, 1981, 16, 2360-2368.	1.7	4
245	Effects of below-cloud gas scavenging on raindrop chemistry over remote ocean regions. Atmospheric Environment, 1984, 18, 1835-1842.	1.1	4
246	Industrial Ecology. , 2004, , 373-382.		4
247	THE CONTEMPORARY MATERIALS CYCLE FOR RADIOACTIVE 137CS IN THE UNITED STATES. Health Physics, 2006, 90, 521-532.	0.3	4
248	Recycling in Context. , 2014, , 17-26.		4
249	Atmospheric Photochemistry. Handbook of Environmental Chemistry, 1980, , 107-143.	0.2	4
250	Tracking the material cycle of Italian bricks with the aid of building information modeling. Journal of Industrial Ecology, 2022, 26, 609-626.	2.8	4
251	Gaseous hydrogen sulfide determination by discoloration of lead-stabilized PVC. AIHA Journal, 1979, 40, 947-954.	0.4	3
252	Microstructure and behavior of laser-mixed Cr/Ni films on Cu alloys. Journal of Materials Research, 1987, 2, 35-45.	1.2	3

#	Article	IF	Citations
253	The Stability of Metals in the Atmosphere: New Chemical Insights to Old Problems. Materials Research Society Symposia Proceedings, 1988, 125, 95.	0.1	3
254	The Nitrogen Chemistry in Interstellar Clouds. , 1987, , 305-310.		3
255	Distant source sensing by statistical treatment of air quality data. Atmospheric Environment, 1977, 11, 313-319.	1.1	2
256	Panel 4: Chemistry at the air-sea interface. Applied Geochemistry, 1988, 3, 37-48.	1.4	2
257	Response to Comments by Paul P. Craig. Journal of Industrial Ecology, 1998, 2, 31-33.	2.8	2
258	Improving the overall environmental performance of existing power generating facilities. IEEE Transactions on Energy Conversion, 2001, 16, 234-238.	3.7	2
259	Technological Use Histories for Solder Metals. , 2006, , .		2
260	Sustainability for the Nation: Resource Connections and Governance Linkages. Environmental Science & Technology, 2014, 48, 7197-7199.	4.6	2
261	Sulfidation under atmospheric conditions of Cu-Ni, Cu-Sn, and Cu-Zn binary and Cu-Ni-Sn and Cu-Ni-Zn ternary systems. Metallurgical and Materials Transactions A - Physical Metallurgy and Materials Science, 1985, 16, 275-284.	1.4	1
262	Designing the perfect green product: SLCA in reverse. , 0, , .		1
263	Spectrographic Analysis with a Small Telescope and Transmission Grating. American Journal of Physics, 1966, 34, 1056-1057.	0.3	0
264	The effects of entrained species on urban photochemical product concentrations. Atmospheric Environment, 1979, 13, 519-523.	1.1	0
265	Member subscriptions. Eos, 1981, 62, 489.	0.1	0
266	Covercoat retardation of permeation through sheet molding compound. Journal of Applied Polymer Science, 1981, 26, 3933-3938.	1.3	0
267	Low cost color in AGU journals. Eos, 1982, 63, 1201.	0.1	0
268	The Nitrogen Chemistry in Interstellar Clouds. Symposium - International Astronomical Union, 1987, 120, 305-310.	0.1	0
269	Regional and global impacts on the biosphere. IEEE Power Engineering Review, 1989, 9, 10-14.	0.1	0
270	Assessing environmentally-beneficial corporate actions. , 0, , .		0

#	Article	IF	Citations
271	Environmentally-benign manufacturing as a systems science. , 0, , .		0
272	Defining the Criticality of Materials. World Scientific Series in Current Energy Issues, 2019, , 103-115.	0.1	0