

Table SPBS-11

S&E articles in materials science, fractional count, by region, country, or economy: 1996–2020

(Number)

Region, country, or economy	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	
Paraguay	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.60	0.00	1.00	0.00	0.00	0.00	0.20	4.00	0.88	
Peru	1.05	1.40	1.70	3.25	1.00	1.33	1.33	3.14	1.47	1.95	2.81	3.28	0.96	1.65	3.40	1.23	4.86	2.55	5.55	9.71	12.15	9.19	6.40	19.54	27.49	
Suriname	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3.52	0.00	0.00	0.50	0.00	0.00	3.00	0.00	0.00	0.00	0.00	0.00	0.00	0.33	0.00
Uruguay	0.37	0.00	2.67	0.40	2.10	1.75	0.67	2.27	0.00	5.77	1.17	1.68	0.69	0.44	2.13	3.35	2.76	3.05	6.02	7.59	8.72	5.31	10.44	9.38	10.04	
Venezuela	24.93	31.66	34.87	39.19	27.93	40.34	28.77	35.72	15.52	29.04	29.70	39.46	23.12	35.81	23.97	53.53	37.40	31.33	55.73	17.59	13.33	17.25	16.94	12.84	9.80	
Europe	10,788.26	13,051.04	11,644.56	10,273.19	11,127.67	14,533.61	13,140.72	13,159.08	14,681.29	14,434.72	13,479.98	14,462.48	15,913.85	15,428.66	14,391.04	15,295.82	16,383.65	16,516.26	18,428.45	18,584.87	20,010.22	19,169.91	20,691.60	23,022.84	23,104.17	
EU-27 and UK ^a	7,122.19	9,031.72	8,065.22	7,157.18	8,156.51	10,226.23	8,630.35	9,377.14	10,502.31	10,512.12	10,453.87	11,177.76	12,362.99	11,685.21	10,903.85	11,334.28	12,286.55	12,415.86	13,955.31	13,945.41	14,273.77	13,576.49	14,267.37	15,089.54	15,620.26	
UK	1,390.80	1,564.34	1,325.85	1,241.86	1,454.17	1,401.83	1,291.30	1,338.59	1,424.09	1,269.54	1,348.24	1,287.19	1,359.37	1,476.83	1,280.49	1,370.85	1,428.31	1,417.05	1,510.57	1,614.88	1,572.78	1,654.96	1,568.89	1,681.04	1,670.79	
EU-27 ^b	5,731.39	7,467.38	6,739.37	5,915.32	6,702.34	8,824.39	7,339.06	8,038.56	9,078.22	9,242.59	9,105.63	9,890.57	11,003.63	10,208.37	9,623.36	9,963.43	10,858.24	10,998.81	12,444.74	12,330.54	12,700.99	11,921.53	12,698.48	13,408.50	13,949.47	
Austria	137.58	178.37	133.63	115.92	143.76	167.66	186.38	194.63	209.44	268.09	276.46	276.45	343.29	280.21	292.87	285.26	276.82	249.33	323.92	404.71	345.91	381.72	358.50	410.87	359.68	
Belgium	126.62	187.51	177.65	152.16	153.44	244.30	171.17	170.81	227.16	192.14	216.29	293.79	282.14	295.15	235.01	241.92	306.66	262.06	298.28	294.59	298.22	274.36	294.95	279.56	318.59	
Bulgaria	75.53	84.03	69.44	51.46	34.78	59.89	55.43	44.92	62.71	72.69	51.38	82.25	62.16	92.96	55.45	95.83	96.65	123.00	100.88	96.20	102.59	79.82	134.60	97.22	163.06	
Croatia	41.74	39.18	38.49	32.37	35.07	32.77	52.80	40.78	56.64	47.44	36.66	51.66	100.79	82.34	74.15	84.96	98.24	112.70	92.46	69.02	91.21	81.86	98.88	95.35	93.35	
Cyprus	0.33	0.00	0.00	0.00	0.67	0.67	1.00	0.00	2.00	0.40	4.35	1.67	3.59	7.20	2.64	2.85	5.35	5.57	5.16	4.25	4.77	5.31	4.19	12.02	12.75	
Czechia	135.50	178.06	131.04	116.42	119.42	218.23	170.05	178.00	226.25	288.38	202.68	359.95	538.49	446.87	498.16	499.09	714.74	724.61	1,019.90	1,071.99	1,267.35	993.49	1,108.58	1,044.81	995.16	
Denmark	58.43	104.93	95.63	79.79	85.27	94.14	75.78	85.39	110.57	125.73	105.11	135.27	138.33	166.62	127.43	132.26	162.23	187.23	164.10	175.03	129.55	146.12	142.83	169.78	147.89	
Estonia	11.00	15.51	11.38	9.23	11.17	15.58	14.52	12.57	19.32	24.59	35.90	40.15	48.73	50.52	60.14	68.99	65.78	61.19	52.26	35.90	50.64	36.27	33.78	61.14	57.66	
Finland	64.08	117.20	92.89	81.37	107.74	250.66	169.78	167.78	224.98	128.56	179.24	135.87	134.66	195.86	141.19	158.59	145.96	161.24	164.51	161.07	169.85	173.89	209.02	203.20	196.69	
France	1,085.52	1,497.98	1,331.19	1,117.40	1,164.32	1,520.71	1,129.73	1,209.81	1,374.57	1,375.01	1,413.81	1,402.77	1,758.73	1,723.17	1,553.04	1,489.77	1,652.26	1,617.30	1,596.28	1,628.27	1,470.17	1,382.47	1,415.83	1,468.84	1,441.40	
Germany	1,937.35	2,432.72	2,043.87	1,851.56	2,201.10	2,653.53	2,449.87	2,811.89	2,760.85	2,950.50	3,039.28	3,138.13	3,150.46	2,481.64	2,220.99	2,333.53	2,321.98	2,268.61	2,445.96	2,737.00	2,599.22	2,553.17	2,640.56	2,889.86	2,858.08	
Greece	65.65	78.98	79.09	83.28	85.72	103.54	82.29	102.02	91.96	141.29	128.67	161.39	159.32	175.39	148.94	154.48	233.05	172.35	192.30	164.86	208.33	144.50	232.99	192.07	196.00	
Hungary	90.21	85.75	247.04	71.11	98.46	109.85	89.52	147.02	119.02	195.88	115.97	195.59	185.11	106.32	202.13	127.94	135.04	236.55	151.45	164.39	106.74	149.73	122.20	147.26	180.91	
Ireland	67.02	36.69	48.54	24.14	36.61	68.75	58.24	62.98	86.65	70.66	53.21	75.11	73.94	71.16	66.54	71.62	94.10	82.46	77.24	65.72	87.87	79.24	79.68	94.93	107.53	
Italy	449.88	513.10	496.34	418.46	517.96	654.50	477.53	546.05	651.98	555.79	574.61	759.93	878.20	859.14	796.68	809.57	850.22	926.32	1,036.24	1,123.89	1,131.44	1,277.27	1,367.40	1,535.65	1,254.16	
Latvia	26.47	44.18	30.43	35.09	33.44	29.50	41.48	37.44	39.07	27.59	28.20	31.92	43.58	30.54	26.22	63.12	56.63	54.09	83.09	45.28	55.59	104.78	120.08	83.85	85.53	
Lithuania	17.65	16.24	18.30	35.86	25.99	41.89	62.44	44.10	50.85	60.84	61.33	40.56	64.70	53.04	41.25	58.85	41.29	44.46	57.60	55.58	55.15	56.37	62.55	86.76	115.99	
Luxembourg	0.25	1.50	1.00	1.50	0.00	0.00	2.00	0.17	1.00	4.75	6.68	5.42	2.50	6.67	5.59	12.76	14.16	20.44	10.04	12.51	15.13	10.77	14.89	18.87	10.40	
Malta	0.00	5.00	1.67	0.00	1.00	0.00	0.00	1.00	0.50	0.20	4.40	0.00	2.00	4.00	4.51	3.20	1.40	3.43	3.75	4.17	2.03	1.71	8.15	3.65	4.14	
Netherlands	235.72	295.81	240.76	199.77	264.16	311.16	241.62	262.22	270.59	284.80	277.61	309.18	301.17	319.57	260.74	245.56	269.87	245.82	226.80	262.75	247.94	227.24	200.57	269.82	259.43	
Poland	319.77	394.55	339.99	308.45	376.11	578.24	392.18	487.50	639.63	705.62	516.78	572.99	588.94	736.03	636.56	796.35	979.34	1,017.51	1,313.37	1,140.03	1,388.54	1,208.92	1,400.99	1,513.73	2,182.94	
Portugal	64.21	120.78	104.53	116.22	134.63	193.20	272.26	187.18	339.05	209.51	442.23	205.37	393.79	265.44	338.11	237.41	298.52	435.71	332.89	335.93	390.74	358.47	342.53	399.61	426.17	
Romania	52.26	132.88	87.03	107.19	111.27	154.36	130.59	111.40	128.72	137.62	93.42	207.41	220.92	238.61	296.12	327.79	303.71	289.67	502.80	383.53	364.40	339.42	391.53	384.11	377.02	
Slovakia	75.83	97.89	74.80	84.24	90.89	123.63	88.79	125.06	142.95	159.82	120.15	165.59	218.74	185.59	209.46	282.99	234.13	269.82	457.10	420.51	498.27	437.75	363.37	323.41	401.14	
Slovenia	46.53	63.52	47.09	70.47	83.34	123.26	101.26	89.76	121.15	116.12	117.36	178.52	180.96	153.89	150.19	197.36	174.22	156.50	156.37	135.38	141.93	114.72	121.42	147.56	153.13	
Spain	323.51	456.56	512.15	399.94	408.68	682.36	523.44	616.41	751.05	731.19	685.85	754.73	831.07	824.80	883.29	846.91	974.92	875.00	1,149.39	903.25	1,027.72	873.79	1,011.57	1,021.59	1,130.20	

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Region, country, or economy	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	
Sweden	222.74	288.47	285.41	351.92	377.34	392.03	298.89	301.69	369.55	367.39	318.01	308.90	297.33	355.63	295.96	334.49	350.97	395.84	430.60	434.73	449.70	428.37	416.84	452.98	420.48	
Other Europe	3,666.07	4,019.32	3,579.34	3,116.01	2,971.16	4,307.39	4,510.37	3,781.94	4,178.98	3,922.60	3,026.11	3,284.71	3,550.86	3,743.45	3,487.19	3,961.55	4,097.10	4,100.40	4,473.14	4,639.46	5,736.44	5,593.42	6,424.23	7,933.30	7,483.91	
Other Europe, 2020 ^b	5,056.87	5,583.66	4,905.19	4,357.87	4,425.33	5,709.22	5,801.66	5,120.52	5,603.07	5,192.14	4,374.35	4,571.90	4,910.23	5,220.29	4,767.69	5,332.39	5,525.40	5,517.45	5,983.71	6,254.33	7,309.22	7,248.38	7,993.11	9,614.34	9,154.70	
Albania	1.10	1.75	2.00	1.33	0.83	0.20	0.00	0.67	1.25	0.00	0.65	1.00	1.49	1.50	1.90	2.27	0.67	2.08	1.50	2.43	0.21	1.33	0.94	3.13	6.20	
Andorra	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
Belarus	91.56	86.29	88.75	62.90	64.59	59.41	93.53	85.63	85.93	83.94	47.00	59.26	51.08	55.20	45.53	50.15	50.67	56.52	59.38	53.14	58.72	69.77	68.11	80.42	74.40	
Bosnia and Herzegovina	1.08	0.38	1.25	0.50	0.50	0.00	2.00	0.33	5.19	3.98	2.67	4.22	2.17	5.32	4.87	7.94	9.87	5.85	7.46	7.28	12.88	15.93	17.31	40.92	51.40	
Holy See (Vatican City)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.38	0.00	
Iceland	1.80	7.80	0.50	2.50	1.00	0.75	1.13	2.80	1.00	3.00	1.33	3.70	1.58	6.25	3.93	11.75	4.84	3.67	5.03	2.72	1.05	7.77	7.00	7.96	9.50	
Kosovo	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.08	1.31	5.04	5.55	6.39	5.75	4.41	5.85	2.86	2.70	6.00	6.23	5.04	
Liechtenstein	1.90	0.00	0.25	3.42	1.00	1.79	0.00	1.37	0.50	3.14	4.23	5.03	3.06	3.00	1.95	2.20	0.67	0.00	1.50	5.17	3.51	2.14	2.16	0.67	2.01	
Moldova	6.37	1.50	3.20	3.19	4.36	4.58	7.37	8.72	4.85	9.95	1.76	4.71	7.83	4.23	6.92	5.91	2.37	3.37	3.67	8.00	1.73	3.64	3.98	5.76	1.81	
Monaco	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.33	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.10	0.00	0.00	0.00	0.17	0.00	
Montenegro ^c	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.58	4.33	5.00	5.45	1.00	3.45	2.90	3.90	0.33	4.29	2.29	3.44	4.07	4.04	
North Macedonia	0.00	0.75	2.20	1.42	1.08	5.87	3.13	4.55	5.67	3.17	3.79	6.00	7.33	4.00	2.50	8.61	5.00	3.95	8.43	4.42	4.03	11.15	7.40	8.95	6.33	
Norway	111.97	95.13	83.71	118.61	106.44	107.17	103.45	94.39	102.87	136.96	155.50	153.49	124.96	155.75	155.41	151.08	213.91	177.20	224.51	174.39	178.97	191.34	176.21	205.19	232.10	
Russia	2,183.73	2,373.20	2,243.83	1,847.83	1,670.08	2,600.38	2,900.40	2,298.40	2,263.12	2,150.21	1,424.59	1,473.98	1,744.44	1,767.78	1,728.59	1,995.17	2,057.40	1,967.29	2,204.56	2,440.94	3,388.47	3,338.68	4,114.05	5,167.50	4,198.66	
San Marino	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.17	0.00	0.00	0.00	0.29	0.67	0.88	
Serbia ^c	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	166.79	111.25	167.23	122.85	150.61	182.48	214.85	186.46	170.69	183.84	142.67	175.90	175.61	175.13	
Serbia and Montenegro ^d	61.65	64.15	81.02	44.18	77.94	48.74	83.11	46.48	121.79	129.08	141.30	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Switzerland	221.91	329.62	212.65	223.53	192.10	266.97	239.89	211.54	288.39	304.14	327.97	336.77	362.39	322.83	266.52	273.73	270.79	276.52	291.80	325.11	310.85	300.42	289.03	333.67	348.47	
Turkey	160.76	105.12	86.26	153.16	132.48	200.29	294.04	269.51	572.81	386.98	461.01	630.80	638.09	732.55	724.53	741.96	785.89	872.51	930.78	871.70	1,013.75	980.58	923.58	1,114.66	1,421.39	
Ukraine	822.23	953.63	773.72	653.45	718.74	1,011.23	782.32	757.55	725.62	708.06	454.31	436.06	489.77	511.52	411.20	553.61	502.71	507.93	539.58	567.19	571.27	523.02	628.82	777.35	946.55	
Middle East	304.32	319.43	273.04	270.47	254.69	352.79	342.30	389.03	412.21	470.09	541.80	705.54	1,038.16	1,204.15	1,493.63	1,754.66	1,825.12	1,930.56	2,116.76	2,138.79	2,444.12	2,435.53	2,538.01	3,143.74	3,886.06	
Armenia	10.58	10.50	3.25	6.67	3.83	6.27	17.42	10.00	8.38	21.95	12.67	8.83	14.80	5.11	11.08	10.92	10.45	7.56	9.80	4.92	6.78	8.80	8.11	9.57	25.16	
Azerbaijan	8.60	12.00	8.00	11.10	3.50	4.00	10.17	8.41	3.17	15.42	14.55	8.08	7.90	14.72	31.50	26.53	17.70	17.40	18.87	19.25	25.96	22.60	20.23	43.00	91.99	
Bahrain	1.50	3.13	3.00	2.50	0.00	4.00	2.92	6.17	6.03	4.00	5.33	9.83	6.50	10.21	8.83	11.35	9.23	6.85	7.80	4.34	7.48	4.53	6.55	4.22	11.45	
Gaza Strip ^e	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.86	1.00	1.50	3.00	1.73	0.00	0.00	1.00	0.45	2.20	2.58	2.96	0.80	2.37	1.00	2.92	5.30	4.78	
Georgia	5.50	2.27	4.75	5.40	2.53	4.37	4.11	6.74	4.90	7.93	9.51	9.48	13.21	8.72	7.30	7.67	9.67	7.21	10.43	4.97	5.38	3.94	2.29	2.83	9.55	
Iran	31.12	28.50	26.02	28.13	33.67	64.42	83.88	117.98	190.38	174.18	256.12	399.44	690.90	849.94	1,049.04	1,249.82	1,261.38	1,333.11	1,452.59	1,477.23	1,681.13	1,667.62	1,670.91	1,911.07	2,137.29	
Iraq	1.39	6.03	7.50	2.00	2.00	2.25	1.00	0.75	0.00	1.00	6.50	3.83	4.08	11.38	12.33	14.83	17.16	37.22	33.48	31.65	40.95	79.25	90.30	195.58	477.55	
Israel	145.58	149.74	124.97	141.79	117.23	156.05	128.95	131.38	98.31	146.70	123.76	129.06	144.82	105.51	124.54	102.21	115.79	105.34	117.57	99.30	146.02	144.78	143.03	156.38	195.91	
Jordan	13.43	13.50	14.25	11.46	11.75	16.25	14.54	10.96	14.63	15.41	15.17	16.04	17.92	18.28	36.16	36.01	34.48	35.50	20.24	24.92	34.49	34.50	49.15	52.56	50.86	
Kuwait	16.00	21.83	23.92	10.50	12.00	11.38	6.13	11.13	8.92	5.00	14.07	20.43	12.37	23.33	23.18	23.34	19.96	29.99	22.91	24.86	17.47	24.28	17.75	32.02	31.59	
Lebanon	0.00	0.17	0.00	0.58	0.33	2.53	0.00	1.39	1.82	2.17	3.13	7.86	4.38	6.14	7.00	12.15	6.52	13.25	17.29	12.20	14.01	14.26	26.60	26.22	30.08	

Table SPBS-11

S&E articles in materials science, fractional count, by region, country, or economy: 1996–2020

(Number)

Region, country, or economy	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
Oman	4.00	5.00	5.75	4.13	4.00	2.50	8.96	5.54	6.50	5.43	6.24	9.67	18.13	10.10	13.19	6.38	13.93	5.75	11.05	19.22	14.21	20.74	15.03	20.30	30.08
Qatar	1.58	3.00	2.17	1.71	1.33	3.00	1.08	0.25	4.92	0.25	2.00	1.08	6.33	4.66	6.15	11.87	17.44	15.38	28.03	29.18	35.45	42.53	60.40	68.08	71.61
Saudi Arabia	56.45	55.92	45.84	40.93	53.67	64.69	50.14	69.78	55.72	52.39	56.11	64.35	79.18	110.14	130.78	195.14	225.24	258.12	288.83	300.93	297.24	275.20	315.13	462.06	579.21
Syria	0.58	1.10	0.13	0.17	0.00	0.75	0.00	0.25	0.80	2.67	3.00	1.87	2.60	2.65	3.00	5.70	11.67	1.58	2.46	4.58	3.00	9.08	4.90	10.87	14.02
United Arab Emirates	6.75	4.17	0.25	2.42	4.83	8.33	11.17	6.92	5.74	12.88	7.95	12.36	14.46	22.68	23.44	33.47	47.28	49.47	63.87	76.96	108.41	76.08	96.90	136.04	112.18
West Bank ^e	0.75	1.08	2.25	1.00	3.50	0.00	1.33	0.52	0.50	0.96	1.43	0.50	0.58	0.25	2.42	5.25	2.28	1.15	5.92	3.02	1.90	2.56	4.82	3.60	5.57
Yemen	0.50	1.50	1.00	0.00	0.50	2.00	0.50	0.00	0.50	0.25	1.25	1.08	0.00	0.33	2.68	1.56	2.72	3.12	2.66	0.46	1.87	3.78	3.00	4.05	7.18
Africa	233.73	267.79	321.31	281.28	300.50	457.68	366.67	456.73	477.47	448.78	492.51	512.61	644.12	832.64	780.94	770.39	847.17	880.88	975.79	1,014.70	1,089.42	1,203.89	1,382.25	1,928.68	2,266.71
Algeria	11.56	13.92	17.27	17.65	32.45	36.76	26.41	42.96	64.06	48.46	74.75	83.17	111.22	171.99	140.97	135.15	146.63	168.02	171.17	162.47	177.74	189.66	232.22	267.29	257.34
Angola	0.00	0.33	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.33	0.00	0.00	0.00	0.00	0.00	0.00	0.33	0.00	0.00	0.00	0.20	0.23
Benin	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.11	0.00	0.00	0.00	0.00	0.00	0.20	0.00	0.20	0.38	0.00	0.00	0.00	2.33	1.09
Botswana	0.00	0.00	0.00	0.00	0.00	1.00	0.00	0.00	0.00	0.00	1.17	0.00	1.00	0.00	1.00	2.33	1.25	0.00	1.00	2.25	4.27	7.93	2.43	15.12	16.03
Burkina Faso	0.00	0.59	0.31	0.00	0.00	0.67	0.25	1.17	0.22	0.38	1.21	1.47	0.00	1.22	1.17	0.00	0.00	0.00	0.00	0.25	0.50	0.00	0.00	1.08	3.01
Burundi	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.67	0.46	0.07
Cabo Verde	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.08
Cameroon	0.50	0.17	0.00	0.00	0.00	1.00	0.00	1.00	2.58	4.27	2.55	2.15	4.34	2.64	1.96	3.71	1.80	3.78	6.80	7.65	8.33	7.71	10.44	20.85	36.17
Central African Republic	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.33	0.20	0.83	0.00	0.19	0.30
Chad	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.19	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.25	0.42	0.58	0.00
Comoros	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.17	0.00	0.00	0.00	0.10	0.00	0.00	0.00
Congo, Democratic Republic of the	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.50	0.00	0.00	0.67	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.25	0.00	0.75	2.89	1.05
Congo, Republic of the	0.00	0.00	0.00	0.00	0.00	0.20	0.00	0.00	0.00	0.50	0.00	0.50	0.00	0.60	0.00	0.00	0.10	0.00	0.11	0.00	0.00	0.00	0.00	1.00	0.00
Côte d'Ivoire	0.00	0.00	0.00	1.00	0.00	0.67	0.00	1.83	0.00	0.25	0.11	0.67	1.58	1.10	0.19	0.20	1.25	0.38	1.25	1.23	0.33	1.67	0.80	2.51	4.42
Djibouti	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.20	0.00	0.00	0.00	0.00	0.00	0.00
Egypt	132.11	133.10	148.68	155.19	139.33	261.71	214.13	251.27	245.21	238.17	215.34	247.65	280.49	345.99	319.75	311.53	324.37	343.58	324.85	307.94	305.19	338.35	373.04	501.33	699.16
Equatorial Guinea	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.17	0.00	0.00	0.00
Eritrea	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.17	0.00	1.00	0.00	0.00	0.00	0.00	0.00	0.24	0.23	0.10	0.25
Eswatini	0.00	1.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.25	1.00	0.00	0.20	0.13
Ethiopia	0.00	0.00	0.00	0.00	0.00	0.07	1.25	0.00	0.00	0.42	0.00	1.29	1.33	0.00	0.00	0.75	0.33	0.00	6.20	5.05	9.47	7.73	19.35	36.69	65.35
Gabon	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.00	1.33	0.00	0.50	0.00	0.00
Gambia, The	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Ghana	0.25	3.00	2.75	0.00	0.33	1.00	2.00	2.00	1.25	2.00	2.00	0.00	2.92	5.14	2.00	2.00	3.66	4.63	4.70	4.15	9.33	3.62	7.87	16.26	28.24
Guinea	0.00	0.00	0.00	0.00	0.00	0.00	1.00	0.00	0.50	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.25	0.00	0.00	0.00	0.00	0.00	0.00
Guinea-Bissau	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Kenya	1.25	1.50	0.17	2.00	1.00	0.00	0.00	2.50	0.40	0.25	2.13	1.00	2.27	2.00	0.25	0.33	0.58	0.87	2.91	3.97	3.97	2.48	2.33	23.73	19.88
Lesotho	0.50	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.25	0.67	1.00	0.00	0.00	0.00	0.00	0.00	0.00	0.50	0.95	0.00	0.00

Table SPBS-11

S&E articles in materials science, fractional count, by region, country, or economy: 1996–2020

(Number)

Region, country, or economy	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
Liberia	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Libya	1.75	1.00	5.38	1.33	4.00	1.00	0.33	2.20	5.83	1.43	1.50	3.75	13.58	7.28	7.37	1.92	3.23	8.86	9.52	6.08	3.57	3.76	1.83	3.02	4.91
Madagascar	0.00	0.00	0.00	0.00	0.33	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.67	0.00	0.00	0.00	0.00	0.00	0.63	0.20	0.08	0.50
Malawi	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.07	0.00	0.00	0.00	0.00	0.08	0.13	0.23	0.00	0.00	0.00	0.00	0.50	0.94
Mali	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.33	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.25	0.00	1.00	0.00	0.00	0.00	0.50	0.00	0.25
Mauritania	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.20	0.50	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.10	0.00	0.00	0.00	0.00	0.00	0.41
Mauritius	0.00	0.00	0.00	0.00	0.17	1.00	0.00	0.00	1.00	1.00	1.33	2.00	0.38	0.50	2.20	0.60	6.60	1.00	1.00	2.04	2.25	4.32	3.25	1.20	4.20
Morocco	14.34	26.47	67.11	37.67	51.74	58.66	34.59	41.00	51.56	35.14	26.92	31.74	37.00	37.91	38.62	38.65	49.12	65.27	63.75	53.70	73.43	117.78	136.12	267.19	347.06
Mozambique	0.00	0.00	0.50	0.00	0.00	0.17	0.00	0.33	0.00	0.00	0.33	0.63	0.00	0.00	0.00	0.40	0.50	0.00	0.00	0.00	0.00	0.25	0.00	0.35	4.53
Namibia	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.20	0.00	1.24	0.58	0.17	2.23	0.60	2.80	2.66
Niger	0.00	0.00	0.00	0.00	0.17	0.00	0.00	0.50	0.00	0.68	0.00	0.00	0.00	0.00	2.00	0.00	0.00	0.00	0.00	0.00	0.67	0.00	0.50	0.00	0.13
Nigeria	5.58	9.08	7.22	15.98	12.00	11.00	16.33	19.30	18.38	19.31	28.63	21.03	28.20	52.50	58.76	39.78	50.87	49.35	60.74	77.16	100.58	96.70	152.28	258.23	280.99
Rwanda	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.58	0.00	0.00	0.11	0.00	0.13	0.00	0.17	0.08	0.00	0.00	0.15	0.14	0.00	4.05
São Tomé and Príncipe	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Senegal	1.50	0.00	0.00	0.00	1.00	1.50	0.00	0.33	0.00	0.20	2.41	0.68	0.33	0.46	0.50	0.00	2.50	0.00	2.93	1.40	0.73	1.06	2.57	2.94	3.07
Seychelles	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Sierra Leone	0.00	0.00	0.00	0.00	1.00	0.00	0.00	0.00	0.25	0.00	0.00	0.00	0.00	0.00	0.50	0.00	0.00	0.00	0.00	0.25	0.00	0.00	0.00	0.00	0.00
Somalia	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.50
South Africa	50.44	62.94	50.91	33.00	34.81	53.60	55.05	46.08	40.07	42.54	67.20	52.23	69.45	90.40	101.94	137.23	155.72	129.62	168.66	207.05	174.95	212.23	262.24	356.83	319.11
South Sudan	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.05	0.00	0.00	0.00
Sudan	0.50	0.00	0.00	0.00	1.00	0.00	1.17	2.00	0.00	0.00	0.11	0.00	2.32	1.96	0.58	1.88	4.55	0.13	2.00	5.38	3.86	5.89	4.77	5.06	6.94
Tanzania	0.25	1.00	0.00	1.00	1.25	0.33	0.00	0.00	0.00	0.00	3.17	0.75	1.50	1.00	0.00	0.43	0.12	1.29	2.88	2.57	1.31	0.64	3.04	7.51	11.31
Togo	0.00	0.00	0.00	1.00	0.00	0.67	0.00	0.25	0.00	0.00	0.00	0.33	0.08	0.00	0.00	0.50	0.25	0.14	1.33	1.20	0.14	0.30	0.33	0.17	1.86
Tunisia	8.00	10.75	19.77	12.95	17.91	25.68	14.17	40.81	41.48	52.23	59.87	59.89	82.97	107.83	99.27	90.20	91.00	103.28	135.80	158.99	203.72	192.50	159.62	122.77	126.90
Uganda	0.00	0.00	0.00	0.00	0.00	1.00	0.00	1.00	2.00	0.67	0.83	1.00	0.67	0.00	0.83	0.00	0.60	0.00	2.21	1.10	1.42	0.21	0.82	3.67	4.79
Zambia	1.00	1.33	1.00	0.50	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.00	0.00	0.00	1.33	0.00	2.00	0.00	0.63	2.08	0.00	0.42	2.72
Zimbabwe	4.20	1.61	0.25	2.00	2.00	0.00	0.00	0.00	1.83	0.40	0.08	0.63	1.25	0.17	0.08	0.00	0.07	0.25	0.67	0.00	0.88	1.50	1.80	1.67	6.58
Asia	8,747.67	9,751.20	9,719.54	10,378.03	11,899.08	14,893.12	14,793.61	15,786.53	19,752.39	24,963.18	27,948.77	30,955.80	30,699.21	31,428.54	32,162.36	34,809.71	33,380.56	35,874.79	38,959.14	40,380.23	41,923.64	45,108.64	48,886.54	53,261.98	56,348.09
Afghanistan	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.17	0.00	0.00	0.00	0.45	0.25	0.77	0.51
Bangladesh	9.87	9.08	6.96	7.37	11.77	9.56	7.25	5.76	11.08	10.13	11.38	20.06	12.07	23.15	27.24	23.62	35.91	40.03	25.28	30.80	71.84	62.17	92.46	144.50	160.44
Bhutan	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.33	0.00	0.00	0.00	0.00	0.00	0.25	0.00	0.00	0.00	0.00	0.00	0.00	1.53	1.00
Brunei	1.50	1.00	1.00	0.00	0.00	0.00	1.33	0.00	2.33	0.83	0.00	1.00	0.00	0.00	2.00	1.00	0.33	2.36	0.50	6.78	7.37	14.03	8.23	14.57	11.79
Burma	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.33	0.00	1.00	0.37	0.20	1.00	0.28	0.32	0.96	0.20	0.11	0.13	2.60	2.81
Cambodia	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.20	0.20	0.00	0.00	0.10	0.00	0.33	1.38	0.27
China	2,551.45	3,081.10	3,291.26	3,254.63	4,119.85	6,459.92	6,152.42	6,844.91	10,127.07	14,921.23	16,666.38	18,408.32	18,865.42	20,099.62	20,224.14	22,124.82	21,118.88	23,231.35	25,850.55	26,566.69	27,700.00	29,215.34	31,488.63	33,286.77	34,765.35
India	1,123.80	1,046.48	982.79	1,160.02	1,222.96	1,289.04	1,344.02	1,458.13	1,482.21	1,569.78	1,675.83	2,010.55	2,254.47	2,223.94	2,461.61	2,727.66	2,822.01	3,155.55	3,263.39	4,041.75	3,973.34	5,494.71	7,412.85	8,763.18	9,950.80

Table SPBS-11

S&E articles in materials science, fractional count, by region, country, or economy: 1996–2020

(Number)

Region, country, or economy	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
Tonga	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Tuvalu	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Vanuatu	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Unassigned	211.56	171.15	160.67	149.01	218.77	288.00	413.62	646.49	642.90	442.54	177.87	196.16	191.45	102.32	56.03	64.00	41.15	48.68	49.29	32.74	41.13	38.60	43.14	73.88	74.13

EU = European Union; UK = United Kingdom.

^a The UK was a part of the EU for data purposes from 1973 to 2019.^b Beginning in 2020, the UK was no longer a member of the EU.^c Beginning in 2006, Serbia and Montenegro represented individual countries.^d Serbia and Montenegro represented a single country for data purposes from 1992 to 2006.^e West Bank and Gaza Strip are separate entities in this list but are grouped in the World Bank Lending Groups classification list. Here, the economic status of the group is applied to both individual regions.**Note(s):**

Article counts refer to publications from a selection of conference proceedings and peer-reviewed journals in S&E fields from Scopus. Articles are classified by their year of publication and are assigned to a region, country, or economy on the basis of the institutional address(es) of the author(s) listed in the article. Articles are credited on a fractional count basis (i.e., for articles produced by authors from different countries, each country receives fractional credit on the basis of the proportion of its participating authors). Data are not directly comparable to *Science and Engineering Indicators 2020*; see the Technical Appendix for information on data filters. The sum of the fractional count for regions, countries, and economies may not add to the world total because of rounding. Some publications have incomplete address information for coauthored publications in the Scopus database. The Unassigned category count is the sum of fractional counts for publications that cannot be assigned to a region, country, or economy.

Source(s):

National Center for Science and Engineering Statistics; Science-Metrix; Elsevier, Scopus abstract and citation database, accessed May 2021.

Science and Engineering Indicators