

TABLE S8-23

USPTO patents and patent families granted in basic materials chemistry, by region, country, or economy: 1998–2018

(Number)

Region, country, or economy	1998		1999		2000		2001		2002		2003		2004		2005		2006		2007		2008		2009		2010		2011		2012		2013		2014		2015		2016		2017		2018	
	USPTO patents	Patent families	USPTO patents	Patent families	USPTO patents	Patent families	USPTO patents	Patent families	USPTO patents	Patent families	USPTO patents	Patent families	USPTO patents	Patent families	USPTO patents	Patent families	USPTO patents	Patent families	USPTO patents	Patent families	USPTO patents	Patent families	USPTO patents	Patent families	USPTO patents	Patent families	USPTO patents	Patent families	USPTO patents	Patent families	USPTO patents	Patent families	USPTO patents	Patent families	USPTO patents	Patent families	USPTO patents	Patent families	USPTO patents	Patent families		
World	3,419	5,537	3,664	6,161	3,418	4,785	3,567	4,548	3,422	4,526	3,367	5,579	2,939	6,039	2,163	6,250	2,410	7,053	2,236	7,355	2,140	6,626	2,347	6,783	3,342	7,639	3,471	9,053	3,884	12,112	4,391	16,526	4,802	16,257	4,546	15,672	4,490	16,910	4,599	14,648	4,465	14,869
North America	1,859	1,284	2,023	1,273	1,867	1,089	2,023	1,833	1,743	1,089	1,700	1,862	1,456	693	1,086	470	1,229	519	1,104	435	1,060	362	1,188	370	1,694	501	1,785	482	1,998	498	2,237	2,464	637	2,197	2,132	499	2,167	438	2,086	359		
Canada	67	55	77	74	71	60	71	48	71	43	61	45	57	37	38	23	43	22	39	26	43	25	74	39	81	35	98	46	99	43	120	49	140	78	123	56	107	57	112	42	91	24
Mexico	3	1	5	2	4	1	2	0	4	2	3	1	2	2	1	0	0	0	4	2	1	1	0	0	4	1	5	0	5	1	7	1	10	2	2	9	17	23	18	19		
Puerto Rico	0	0	2	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	1	0	0	1	0	0	2	0	0	2	0	1	0	0			
United States	1,789	1,227	1,939	1,197	1,792	1,029	1,760	932	1,668	845	1,635	786	1,396	654	1,046	447	1,186	497	1,061	407	1,016	336	1,111	331	1,609	466	1,680	436	1,894	454	2,110	465	2,311	559	2,062	502	2,015	421	2,037	373	1,978	316
All others	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0			
Central and South America	11	5	21	11	16	7	11	5	15	7	16	5	13	10	9	11	16	8	11	10	9	6	13	17	28	14	25	26	32	21	24	29	27	40	28	46	25	35	23	63		
Argentina	0	0	1	0	1	0	1	0	0	1	2	0	1	1	2	1	1	0	0	1	0	0	1	1	1	0	1	2	0	1	0	1	0	2	0	1	1	3	3	1		
Brazil	3	1	6	3	7	3	4	2	4	2	7	2	5	3	7	10	5	4	5	6	5	6	8	16	15	13	14	23	9	14	20	10	34	20	43	13	29	11	57			
All others	7	4	15	9	8	3	6	3	10	4	7	3	8	6	0	5	2	7	4	3	3	1	5	1	12	1	10	3	22	6	8	1	9	3	15	6	9	2	12	5		
Europe	918	1,695	976	1,588	905	1,301	1,017	1,166	968	1,369	937	1,633	767	1,621	578	1,462	617	1,372	539	1,227	473	1,323	499	1,265	752	1,279	723	1,285	823	1,481	931	1,773	1,065	1,485	1,016	1,372	950	1,256	968	1,492	924	1,440
EU	849	869	909	922	843	722	942	654	894	704	878	677	709	654	537	665	571	668	499	592	439	618	451	531	690	607	670	622	760	766	852	647	978	588	929	608	850	691	869	701	831	771
Austria	5	13	5	18	4	13	7	8	8	18	6	15	5	12	5	15	6	8	4	8	3	13	2	12	5	20	6	11	9	22	4	13	9	16	11	16	11	11	13	16		
Belgium	79	40	88	32	70	24	65	18	85	33	72	26	45	23	39	13	38	17	28	12	20	8	33	18	39	13	35	18	43	13	54	27	63	19	42	11	39	13	42	42		
Denmark	14	5	24	5	11	4	21	2	13	5	19	5	9	1	7	1	6	2	2	2	6	2	8	2	2	8	1	1	16	4	3	4	2	4	2	2	7	2	7	26		
Finland	8	16	13	13	7	18	11	22	9	10	8	16	6	20	4	12	3	11	9	9	5	11	8	15	4	16	11	10	15	14	20	17	18	13	23	14	24	25	18			
France	99	173	115	170	109	122	101	133	108	133	101	145	74	137	59	142	96	175	71	147	63	113	58	96	98	118	96	144	105	212	124	160	139	140	126	177	148	160	142	143	144	134
Germany	377	169	386	172	380	144	449	133	424	168	402	160	337	131	249	156	278	177	219	158	205	156	204	115	296	120	280	100	346	129	377	107	455	417	119	346	130	362	114	320	122	
Hungary	1	12	1	5	1	8	3	10	1	5	1	8	1	3	2	3	1	4	7	7	1	2	0	3	1	6	1	4	1	6	3	4	3	5	3	5	3	3	0	6		
Ireland	1	3	0	4	1	2	2	0	1	2	3	1	4	2	3	0	2	0	3	1	2	0	2	0	2	0	3	1	4	3	2	5	2	3	2	4	2	4	3	4	1	
Italy	25	52	35	109	37	90	27	52	40	58	44	42	20	79	16	44	20	15	14	10	19	12	14	8	23	19	28	28	23	25	29	7	24	8	30	6	31	12	35	82	29	77
Netherlands	36	31	48	34	56	27	52	34	48	21	51	30	43	25	32	19	41	18	32	22	15	24	31	15	49	18	39	22	41	16	59	28	65	17	67	18	66	22	63	27	57	18
Spain	9	34	7	62	6	52	10	34	6	32	7	32	7	37	7	63	3	37	44	7	44	4	49	7	55	9	65	11	50	11	65	12	58	16	62	15	52	20	42	12	41	
Sweden	9	25	16	28	9	20	14	24	10	12	15	12	12	8	12	12	13	11	13	7	8	6	10	7	10	12	11	11	13	6	14	5	13	6	13	8	16	6	15	6	9	
United Kingdom	184	58	167	45	148	49	179	30	139	34	152	49	142	38	105	24	105	23	90	19	83	26	79	22	144	34	128	25	126	39	134	35	150	31	153	34	125	32	128	36	135	40
All others	3	238	4	223	3	148	1	154	4	179	1	133	4	124	2	160	2	171	2	140	3	198	3	166	4	175	3	182	7	221	11	173	11	181	13	131	11	211	11	171	13	247
Other Europe	69	826	67	666	63	579	75	512	74	665	59	956	58	967	41	797	46	703	40	636	35	705	48	733	62	672	53	663	63	715	87	897	87	1,126	87	791	100	791	100	791	93	669
Former Soviet Union	2	35	0	22	0	14	2	34	1	58	0	97	1	240	0	90	0	84	1	113	1	89	0	95	0	87	1	81	1	56	2	70	2	64	1	55	1	45	1	52		
Norway	3	8	4	10	5	9	6	10	4	9	3	6	7	4	3	5	3	6	9	5	6	3	2	9	7	4	9	7	10	6	10	4	10	3	8	11	8	13	5			
Russia	6	762	5	605	6	539	5	452	7	577	6	834	6	709	4	685	6	600	8	503	4	592	6	618	11	564	5	550	5	633	11	811	11	696	10	722	10	486	9	590		
Switzerland	58	20	56	29	52	15	63	15	62	20	50	19	42	14	33	15	36	13	28	10	24	13	37	14	43	12	42	21	49	14	57	15	64	13	65	11	74	14	73	12	64	17
All others	0	0	1	0	0	2	0	1	0	1	1	0	1	1	1	1	1	0	1	1	0	6	2	4	0	4	2	2	2	3	1	3	4	3	4	3	2	5	3	6	5	
Asia	591	2,489	606	3,187	593	2,315	678	2,349	660	2,208	676	3,062	669	3,683	451																											

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	USPTO patents	Patent families	USPTO patents	Patent families	USPTO patents	Patent families	USPTO patents	Patent families	USPTO patents	Patent families	USPTO patents	Patent families	USPTO patents	Patent families	USPTO patents	Patent families	USPTO patents	Patent families	USPTO patents	Patent families	USPTO patents	Patent families	USPTO patents	Patent families	USPTO patents	Patent families	USPTO patents	Patent families	USPTO patents	Patent families	USPTO patents	Patent families	USPTO patents	Patent families	USPTO patents	Patent families	USPTO patents	Patent families	USPTO patents	Patent families			
China	8	200	5	239	5	455	5	607	14	438	9	932	16	1,251	10	1,458	14	1,700	8	1,661	15	1,661	17	2,222	27	2,299	33	3,277	43	5,618	66	9,307	80	8,914	116	10,121	152	11,528	147	8,998	178	9,554	
India	6	3	10	5	10	5	13	7	20	12	17	13	18	9	16	13	16	7	9	7	10	8	15	4	21	4	34	6	45	12	55	17	68	24	77	15	79	10					
Japan	551	2,050	548	2,499	543	1,596	600	1,447	570	1,438	584	1,520	563	1,759	374	1,375	439	1,634	471	2,253	462	2,172	479	2,120	631	2,476	684	2,795	723	2,924	829	3,056	843	3,375	802	2,078	801	2,068	814	1,832	718	1,626	
Malaysia	0	0	1	0	1	0	1	0	1	0	1	0	1	1	3	3	1	6	2	10	3	4	7	9	5	16	7	19	4	15	7	19	8	27	7	38	4	20					
Singapore	1	1	2	2	2	2	2	1	3	1	3	3	2	0	1	0	2	1	4	3	2	0	3	3	2	2	5	3	6	1	5	1	14	2	7	2	14	2	14				
South Korea	14	207	26	416	16	224	35	229	32	268	42	534	44	574	32	1,343	35	1,681	43	1,651	45	960	64	658	82	895	97	1,036	120	1,371	112	1,585	113	1,492	139	1,162	169	1,172	193	1,592	223	1,629	
Taiwan	9	23	11	24	13	31	20	54	18	50	18	57	25	87	16	68	14	84	16	84	25	75	28	62	41	100	34	72	44	115	56	167	204	50	194	53	177	44	152	55	101		
All others	2	5	3	2	1	2	2	4	1	2	2	3	1	2	1	2	1	2	1	2	1	3	1	1	0	2	1	3	4	6	5	7	5	4	4	5	5	8	6	7	3	2	
Middle East	11	6	7	4	5	6	9	4	10	5	9	8	9	5	9	8	8	5	7	9	13	9	8	12	10	6	23	12	28	7	46	15	44	13	63	24	79	20	94	25	109	34	
Israel	9	4	7	3	5	1	8	3	9	2	5	4	8	3	6	2	6	3	4	6	2	6	6	5	11	3	16	2	15	3	18	2	22	4	25	4	30	0	23	4			
All others	2	2	1	1	0	5	1	1	1	3	4	4	1	2	1	6	2	5	3	9	2	6	6	5	9	4	7	10	13	5	20	12	26	11	41	20	54	18	64	24	86	30	
Africa	4	20	9	22	4	19	4	20	6	20	8	23	4	11	7	13	1	12	6	12	7	23	5	14	7	22	9	12	17	14	9	12	11	14	9	4	5	4	8	4			
South Africa	4	19	7	14	3	12	3	3	5	3	5	5	3	2	7	7	1	7	8	7	7	16	4	8	7	17	8	0	12	3	12	0	8	11	3	8	1	0	6	1			
All others	0	2	2	8	1	7	1	16	2	18	4	18	1	9	0	6	0	4	0	4	0	7	1	6	0	5	0	9	0	14	1	9	2	9	1	4	2	5	1	4	2	3	
Australia and Oceania	22	16	21	17	27	16	14	21	20	24	21	15	21	15	22	18	17	17	13	22	20	20	16	17	16	30	22	35	28	24	33	32	47	37	62	46	83	32	76	34	19	41	26
Australia	19	15	17	15	23	16	12	21	17	24	20	15	19	15	22	18	17	17	11	22	17	19	15	15	27	20	27	31	27	20	33	24	45	31	59	41	83	23	76	30	17	34	26
New Zealand	3	1	4	1	3	0	1	0	3	0	2	0	2	0	0	1	0	0	1	0	2	1	1	2	3	2	4	1	4	0	8	2	5	2	6	1	9	0	5	2	7	0	
All others	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Unclassified	3	22	1	59	1	32	0	3	0	2	0	1	0	1	0	4	0	4	0	0	0	1	0	0	0	0	0	1	0	0	0	0	0	0	1	0	1	0	2	1	0	2	0

EU = European Union; USPTO = U.S. Patent and Trademark Office.

Note(s)

USPTO patents are allocated according to patent inventorship information. USPTO patents are fractionally allocated among regions, countries, or economies based on the proportion of residences of all named inventors. Patents are classified under the World Intellectual Property Organization (WIPO) classification of patents, which classifies International Patent Classification (IPC) codes under 35 technical fields. IPC reformed codes take into account changes that were made to the WIPO classification in 2006 under the eighth version of the classification and were used to prepare these data. However, because PatentsView only provides the original IPC codes as they appeared on patents and not the IPC reformed codes, current Cooperative Patent Classification codes on patents were converted back to the most recent IPC classification to prepare these statistics. Fractional counts of patents were assigned to each technological field on patents to assign the proper weight of a patent to the corresponding technological fields under the classification. International Patent Documentation (INPADOC) patent families across all patent offices covered in the Worldwide Patent Statistical Database (PATSTAT) are counted according to the year of the first granted patent in the patent family. Patent families are allocated according to patent inventorship information found on the priority patent of the INPADOC patent families. To account for missing ownership information in PATSTAT for some offices, a method designed by de Rassenfosse et al. (2012) is used to fill in missing information on priority patents using information in successive filings within the patent families (see technical documentation for details). Patent families are fractionally allocated among regions, countries, or economies based on the proportion of residences of all named inventors. Because of data coverage issues for some patent offices in PATSTAT, statistics for some countries may be underestimated partially for some years or across the whole trend. Countries with identified issues include India (missing data) and South Africa (no data for 2018). For Italy, because of data gaps regarding information on granted patents, patent applications are used instead, which slightly overestimates Italy's output and creates a small shift in the year for which its output is accounted. The EU includes 28 member countries. China includes Hong Kong.

Source(s)

Science-Metrix; PATSTAT, accessed April 2019; PatentsView, USPTO, accessed June 2019.