

Table SINV-22

## International patent families granted in macromolecular chemistry, polymers, by region, country, or economy: 1998–2020

(Number)

Region, country, or economy	Economy by income status	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
World	na	5,307	5,970	5,259	5,312	5,662	6,472	6,388	5,642	6,294	6,501	6,098	6,019	7,120	8,993	10,801	11,519	11,581	11,308	13,735	12,661	12,586	11,798	13,797
North America	na	920	912	870	877	894	848	760	560	574	570	542	566	738	682	708	738	806	741	737	689	624	618	637
Canada	High	25	26	27	36	41	33	38	26	28	21	26	30	37	35	40	35	49	54	45	50	38	30	32
Mexico	Upper middle	1	1	1	0	1	2	1	1	0	1	2	3	1	2	2	3	4	3	9	13	16	11	2
United States	High	894	885	843	841	852	813	720	533	546	548	514	533	701	645	666	700	753	684	684	626	571	576	604
Central America and Caribbean	na	0	1	0	1	0	1	0	0	0	0	0	0	0	0	2	0	1	0	0	0	0	1	1
Puerto Rico	High	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
South America	na	3	3	3	6	6	10	10	7	12	5	8	8	5	19	12	13	10	9	12	9	14	14	48
Argentina	Upper middle	0	1	1	0	0	0	1	1	0	0	1	0	0	1	0	0	0	0	1	0	0	0	0
Brazil	Upper middle	1	1	2	6	6	10	9	6	11	3	7	7	5	17	11	12	9	6	8	9	13	13	47
Europe	na	1,191	1,168	993	975	1,038	1,153	1,203	973	1,066	921	930	871	923	1,009	1,137	1,088	1,116	1,125	1,109	1,184	1,078	1,049	1,009
EU-27 + UK <sup>a</sup>	na	935	918	814	804	833	899	944	691	839	703	712	640	686	760	854	808	864	832	904	896	796	785	822
United Kingdom	High	64	54	46	43	48	49	54	30	34	39	36	25	39	26	30	28	26	19	28	25	21	25	25
EU-27 <sup>b</sup>	na	871	864	767	761	785	851	890	661	805	663	676	615	647	734	824	780	838	813	876	871	775	760	797
Austria	High	12	13	17	14	17	17	12	18	17	10	15	14	19	29	30	25	33	42	39	43	29	45	29
Belgium	High	40	40	36	44	32	39	37	24	41	34	46	33	46	39	55	42	42	44	48	37	34	27	27
Denmark	High	2	2	4	3	4	1	3	3	2	2	5	3	1	4	4	2	3	5	4	3	3	6	6
Finland	High	14	13	10	14	11	15	20	11	11	11	15	13	15	24	12	23	22	23	36	31	20	20	19
France	High	119	122	107	120	125	151	123	110	151	114	80	64	87	116	169	120	115	128	134	142	116	113	201
Germany	High	443	416	340	371	400	453	499	329	424	332	335	292	301	302	306	341	388	344	323	307	279	276	255
Hungary	High	1	1	4	5	2	5	0	3	1	1	2	2	2	6	2	2	1	1	2	3	3	1	3
Ireland	High	1	0	1	2	1	2	1	1	0	1	2	1	4	2	3	4	3	2	2	4	3	2	4
Italy	High	60	91	94	48	50	35	81	36	28	23	35	35	35	47	43	24	31	35	49	80	83	59	48
Netherlands	High	76	70	55	54	53	51	49	32	35	40	34	43	45	41	38	48	55	45	48	58	56	63	61
Spain	High	8	10	19	13	8	14	14	15	12	13	15	16	19	24	27	22	26	26	31	16	22	24	18
Sweden	High	11	14	10	7	9	12	13	12	12	9	14	17	15	16	11	15	19	16	16	17	15	18	25
Other Europe	na	256	250	179	171	204	254	259	282	227	218	218	232	237	249	283	280	253	292	206	288	282	264	188
Other Europe-2020 <sup>b</sup>	na	320	304	225	214	252	302	313	312	261	257	254	257	276	275	313	308	279	312	233	313	303	289	212
Belarus	Upper middle	1	2	2	0	0	3	3	4	7	5	3	2	3	3	2	4	0	2	1	2	1	2	4
Moldova	Lower middle	1	2	3	1	2	0	1	1	1	5	2	2	2	1	1	1	1	0	0	1	0	1	2
Norway	High	2	6	2	8	3	5	6	7	8	5	5	7	7	7	6	5	3	1	3	3	4	2	2
Russia	Upper middle	210	199	140	128	163	191	158	232	167	151	151	167	174	182	226	219	191	236	145	231	223	216	134
Switzerland	High	32	39	24	23	28	27	24	18	23	23	20	28	33	36	37	40	40	37	40	36	39	30	42

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Ukraine	Lower middle	8	2	5	9	8	27	66	20	20	27	36	25	16	20	10	10	15	14	11	9	12	4	0
Asia	na	3,107	3,755	3,243	3,319	3,558	4,261	4,221	4,008	4,548	4,916	4,561	4,525	5,411	7,248	8,907	9,646	9,602	9,391	11,817	10,730	10,833	10,084	12,058
China	Upper middle	48	60	143	175	155	421	696	629	893	782	862	1,251	1,705	3,031	3,967	4,126	4,266	5,696	7,844	6,614	7,157	6,536	8,091
India	Lower middle	6	6	6	9	9	12	16	9	17	18	14	16	27	13	16	17	25	21	25	35	28	29	22
Japan	High	2,746	2,854	2,783	2,832	2,923	3,242	2,897	2,473	2,288	3,040	2,874	2,753	3,140	3,612	3,984	4,425	4,184	2,707	2,881	2,750	2,511	2,312	2,432
Malaysia	Upper middle	3	1	1	0	1	2	2	0	2	2	3	3	6	11	7	8	11	4	13	12	6	3	2
Singapore	High	4	5	7	7	7	12	9	5	5	6	4	3	3	4	5	5	7	11	6	7	6	7	8
South Korea	High	263	788	254	230	401	512	511	844	1,260	1,005	742	391	461	484	821	892	918	742	881	1,167	1,000	1,071	1,402
Taiwan	High	36	39	48	66	61	58	89	46	81	62	60	104	65	90	101	169	187	201	158	134	117	115	95
Middle East	na	4	8	7	8	6	14	12	8	6	7	4	5	7	14	14	14	25	26	33	29	20	18	26
Israel	High	3	6	4	6	3	10	4	4	6	3	3	4	5	8	7	6	8	7	6	4	3	5	7
Africa	na	14	9	12	7	7	9	8	6	2	6	10	11	11	2	2	5	4	2	5	5	5	3	3
South Africa	Upper middle	14	9	10	3	5	5	7	2	1	4	9	11	9	1	1	2	0	1	1	1	1	1	2
Australia and Oceania	na	57	73	83	115	151	176	173	79	84	75	40	32	24	16	18	14	15	12	14	14	10	10	13
Australia	High	53	69	80	111	147	173	170	75	80	71	36	28	19	12	12	9	10	8	8	12	8	9	12
New Zealand	High	4	4	3	4	5	3	3	4	3	4	4	3	5	4	6	5	5	4	6	2	2	1	1
Unclassified	na	11	41	48	3	2	0	1	2	2	2	3	0	0	1	1	1	1	1	8	1	1	1	1

na = not applicable, metric not calculated at this level.

EU = European Union; UK = United Kingdom.

<sup>a</sup> The United Kingdom was a part of the EU for data purposes from 1973 to 2019.<sup>b</sup> Beginning in 2020, the United Kingdom was no longer a member of the EU.**Note(s):**

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. (2013) is used to fill missing information on priority patents using information in successive filings within the families. Priority patents not indexed in PATSTAT are replaced by the next utility patent(s) in the families according to filing dates. Patent families 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. China includes Hong Kong. Data were extracted in June 2021. 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 year for which its output is accounted. As patent authorities become more involved with the European Patent Organisation, these gaps should disappear in the future, strengthening the robustness of statistics for these countries.

**Source(s):**

National Center for Science and Engineering Statistics; Science-Metrix; PATSTAT, accessed October 2021.