

CHEMICAL
INDUSTRY OF
J A P A N
2024

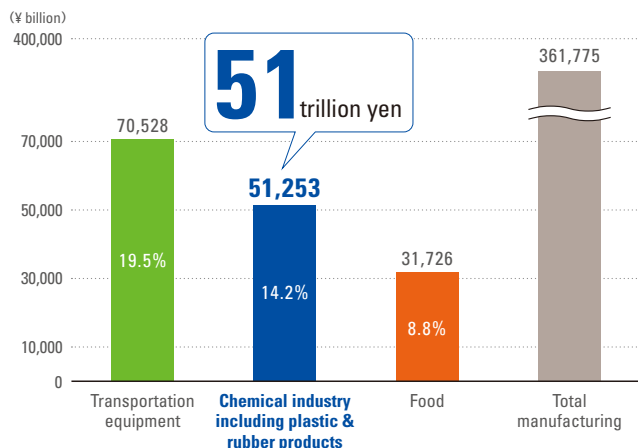


Japan's chemical industry viewed by figures and graphs

page 3

Value of shipments (2022)

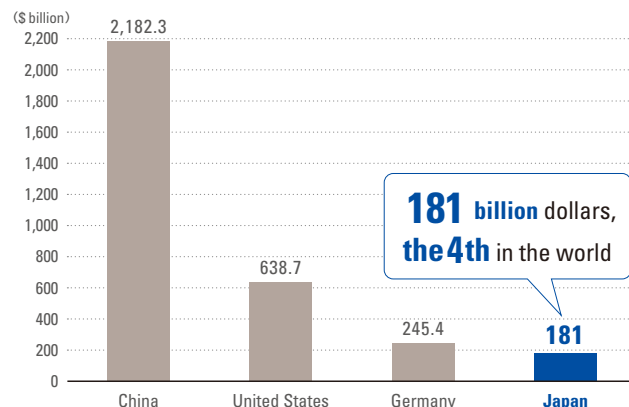
Source : METI [Annual Business Survey]**



page 15

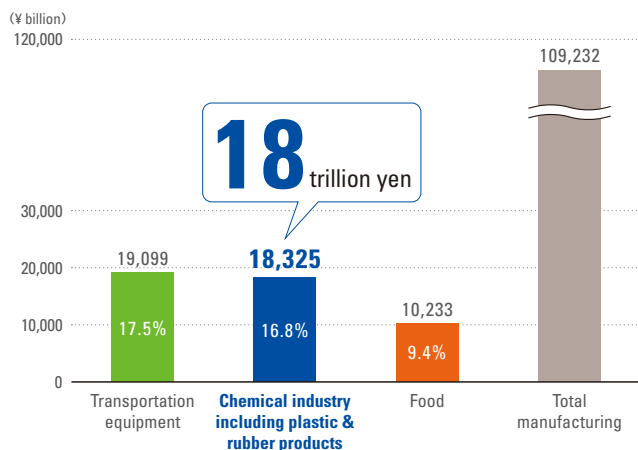
Shipments by country/region (2022)

Source : American Chemistry Council



Amount of value added (2022)

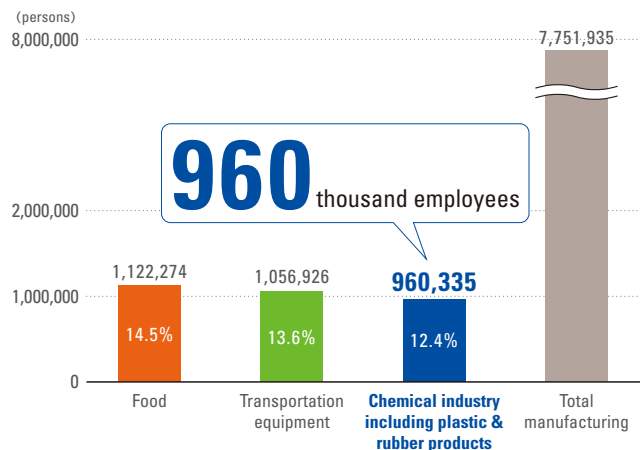
Source : METI [Annual Business Survey]**



page 9

Number of employees (2022)

Source : METI [Annual Business Survey]**

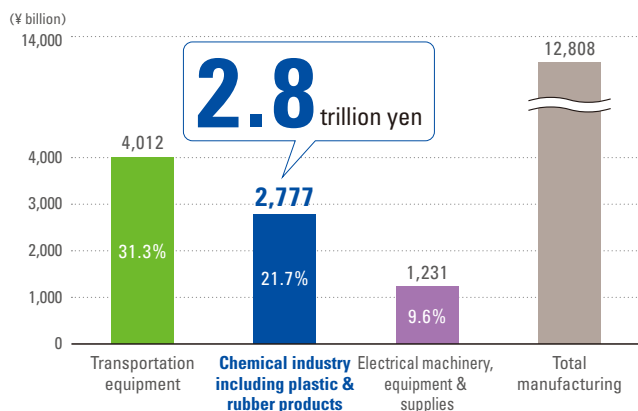


Note: Value added = Production amount – Cost for using raw materials – Domestic consumption tax – Depreciation cost, etc

page 11

R&D expenditures (2022)

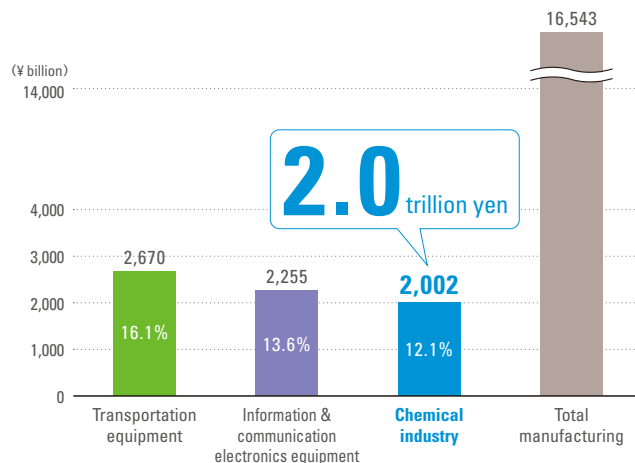
Source : MIC [Survey of Research and Development]



page 14

Capital investment (2023)

Source : MOF [Financial Statements Statistics of Corporations by Industry]



** Annual Business Survey (Excludes private management)

Japan's chemical industry supports people's lives and other industries

Japan's chemical industry supports innovation across entire industries by supplying materials which offer a wide range of functionality as basic ingredients for many different types of industry. The products which are then generated bring about improvements in people's lives in every realm, the purification of water and the environment, better utilization of renewable energy, energy saving and resource saving, development of an information-based society, the advancement of medical care, a stable food supply, and the recycling of waste. They also make a significant contribution in terms of sustainable development. Such a diversified contribution is a distinctive feature of the chemical industry, one that is never seen in other industries, and one that demonstrates the infinite potential of chemistry.

The total shipments and amount of value added of "chemical industry including plastic and rubber products" amounted to Yen 51 trillion and Yen 18 trillion, respectively, in 2022, ranking those as the second and first scales in the manufacturing industry. The number of employees is about 960,000. Thus, the industry significantly supports the people's lives also in employment. Although it may be difficult for people to understand overall chemical industry because it manufactures diverse products*, we introduce the industry with data and graphs in this "Chemical Industry of Japan".

*Since the chemical industry is vast, with wide range and scope of work, content may vary depending on different classifications. Therefore, in this brochure, we have conformed to Japan Standard Industrial Classification (major group: manufacture of chemical and allied products). Detail of content is described on Page 5. When the standard differs, we have provided footnotes.



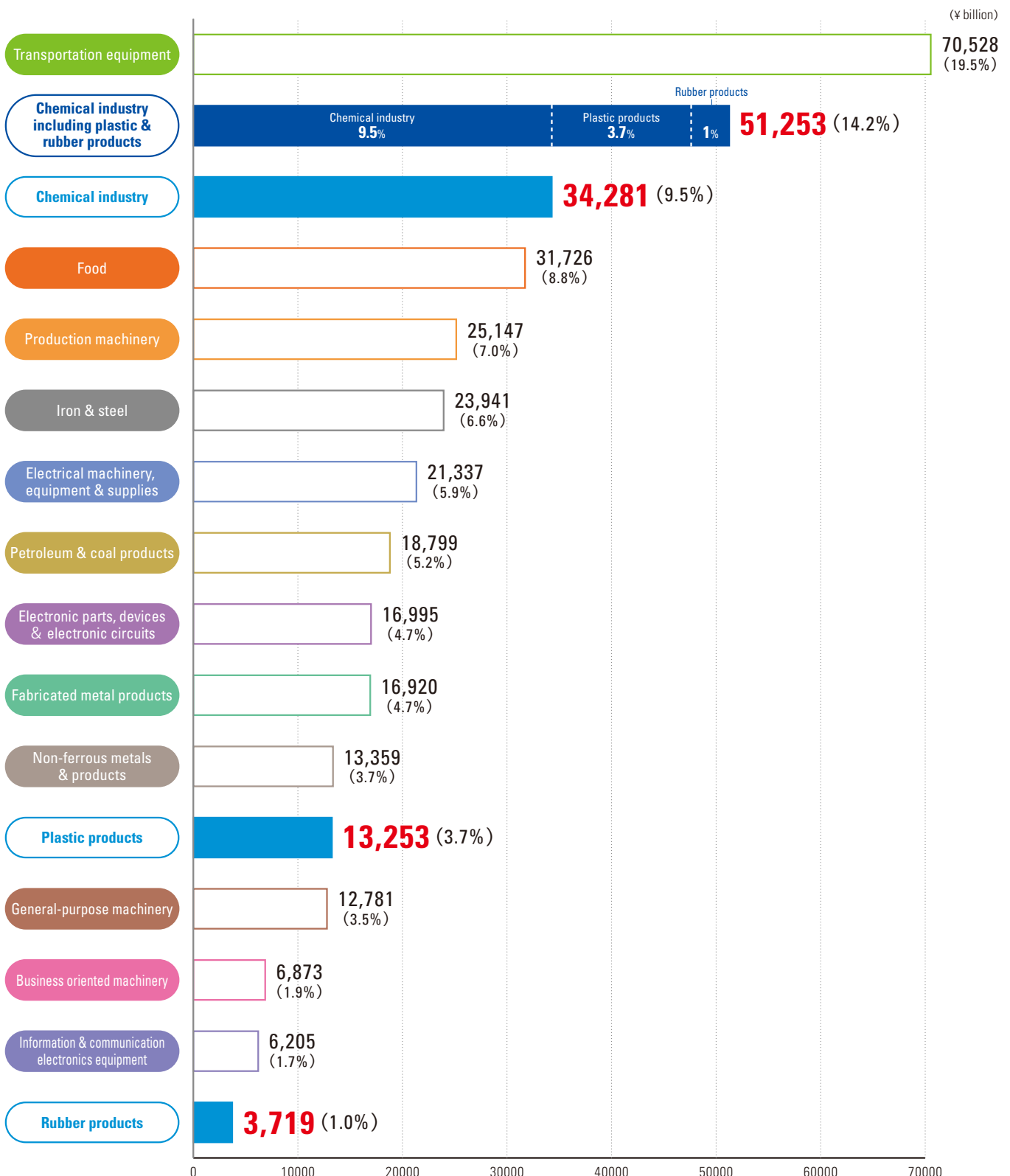
C O N T E N T S

Japan's chemical industry viewed by figures and graphs	1	8 Amount of capital investment	14
Japan's chemical industry supports people's lives and other industries ...	2	9 Shipments by Country/Region	15
1 Shipments	3	10 The world's 30 leading chemical companies	16
2 Shipment by products/Major indices	5	11 Trade balance	17
3 Shipment, number of employed workers and number of facilities by prefecture ...	7	12 Exports and imports of chemicals by region	18
4 Number of employed workers	9	13 Outward/inward direct investments	19
5 Labor productivity/Working hours	10	14 Ratio of overseas production/Sales of overseas subsidiary companies ...	20
6 Research and development expenditures	11	JCIA Index that shows "the current state" of Japanese chemical industry ...	21
7 Operating profit margin	13		

Shipments

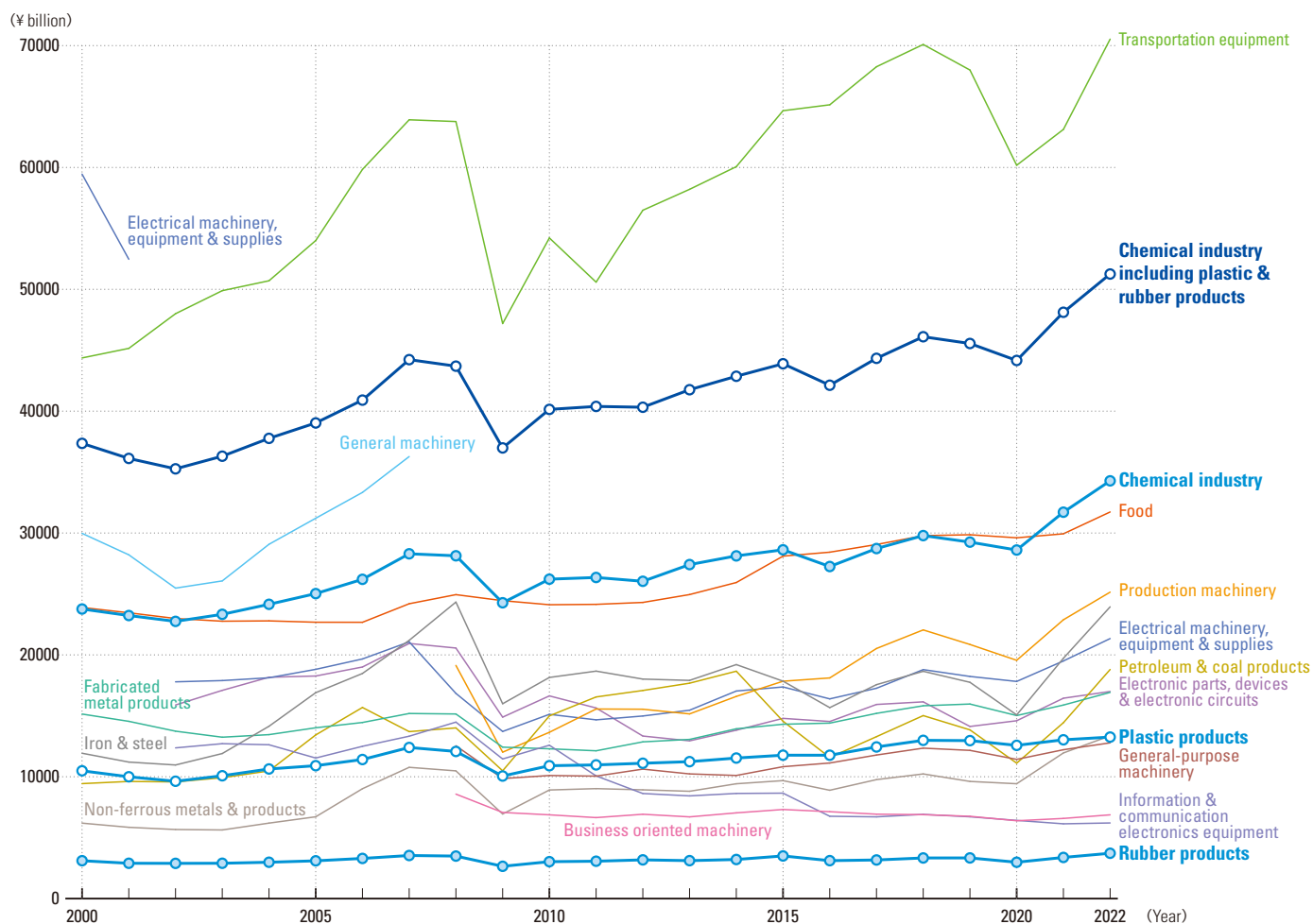
Total shipment value of chemical industry ranks 2nd in manufacturing industries amounting to 51 trillion yen.

Value of shipments by manufacturing industry in 2022



(Source) Ministry of Economy, Trade and Industry [Annual Business Survey (Excludes private management)]

Trend in shipment value (2000-2022)



(¥ billion)

Industry	Year	Every 5th year				Recent three years			
		2000	2005	2010	2015	2020	2021	2022	
Chemical industry		23,762	25,027	26,212	28,622	28,603	31,708	34,281	9.5%
Plastic products		10,486	10,906	10,903	11,767	12,574	13,030	13,253	3.7%
Rubber products		3,107	3,099	3,029	3,499	2,982	3,376	3,719	1.0%
Chemical industry including plastic & rubber products		37,356	39,032	40,144	43,889	44,159	48,114	51,253	14.2%
Food		23,888	22,678	24,114	28,102	29,606	29,935	31,726	8.8%
Petroleum & coal products		9,434	13,429	14,992	14,555	11,114	14,433	18,799	5.2%
Iron & steel		11,927	16,896	18,146	17,842	15,072	19,719	23,941	6.6%
Non-ferrous metals & products		6,191	6,712	8,911	9,680	9,424	11,951	13,359	3.7%
Fabricated metal products		15,143	14,016	12,292	14,306	15,020	15,881	16,920	4.7%
General machinery		29,972	31,211	—	—	—	—	—	—
General-purpose machinery		—	—	10,100	10,823	11,424	12,215	12,781	3.5%
Production machinery		—	—	13,646	17,837	19,554	22,879	25,147	7.0%
Business oriented machinery		—	—	6,873	7,311	6,387	6,577	6,873	1.9%
Electronic parts, devices & electronic circuits		—	18,265	16,633	14,788	14,593	16,442	16,995	4.7%
Electrical machinery, equipment & supplies		59,449	18,812	15,120	17,366	17,819	19,499	21,337	5.9%
Information & communication electronics equipment		—	11,534	12,585	8,652	6,417	6,135	6,205	1.7%
Transportation equipment		44,367	54,000	54,214	64,654	60,178	63,120	70,528	19.5%
Others		62,752	48,760	41,338	43,324	41,236	43,320	45,909	12.7%
Total manufacturing		300,478	295,346	289,108	313,129	302,003	330,220	361,775	100.0%

(Source) Since 2021, Ministry of Economy, Trade and Industry [Annual Business Survey (Excludes private management)]

(Note) Electrical machinery was divided into electronic parts & devices, electrical machinery, and information & communication electronics equipment in 2002.

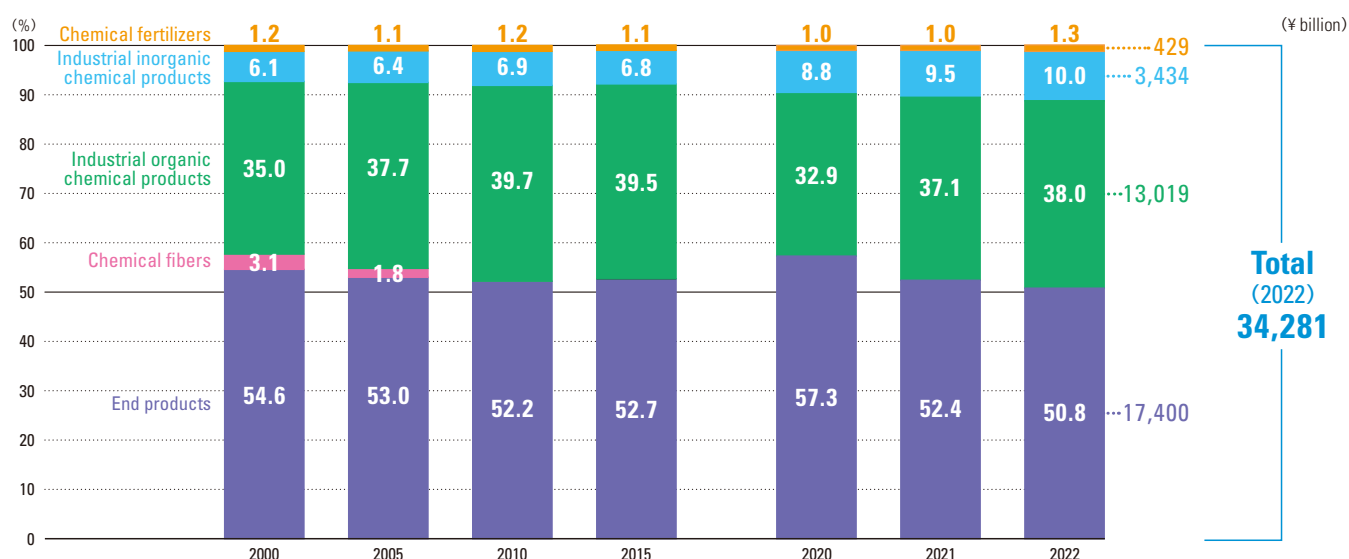
General machinery was divided into general-purpose machinery, production machinery, and business oriented machinery in 2008.

Electronic circuits have been added to electronic parts & devices since 2011.

Shipment by products/Major indices

Chemical products meet the needs of various fields.

Trend of shipments composition in chemical industry (2000-2022)

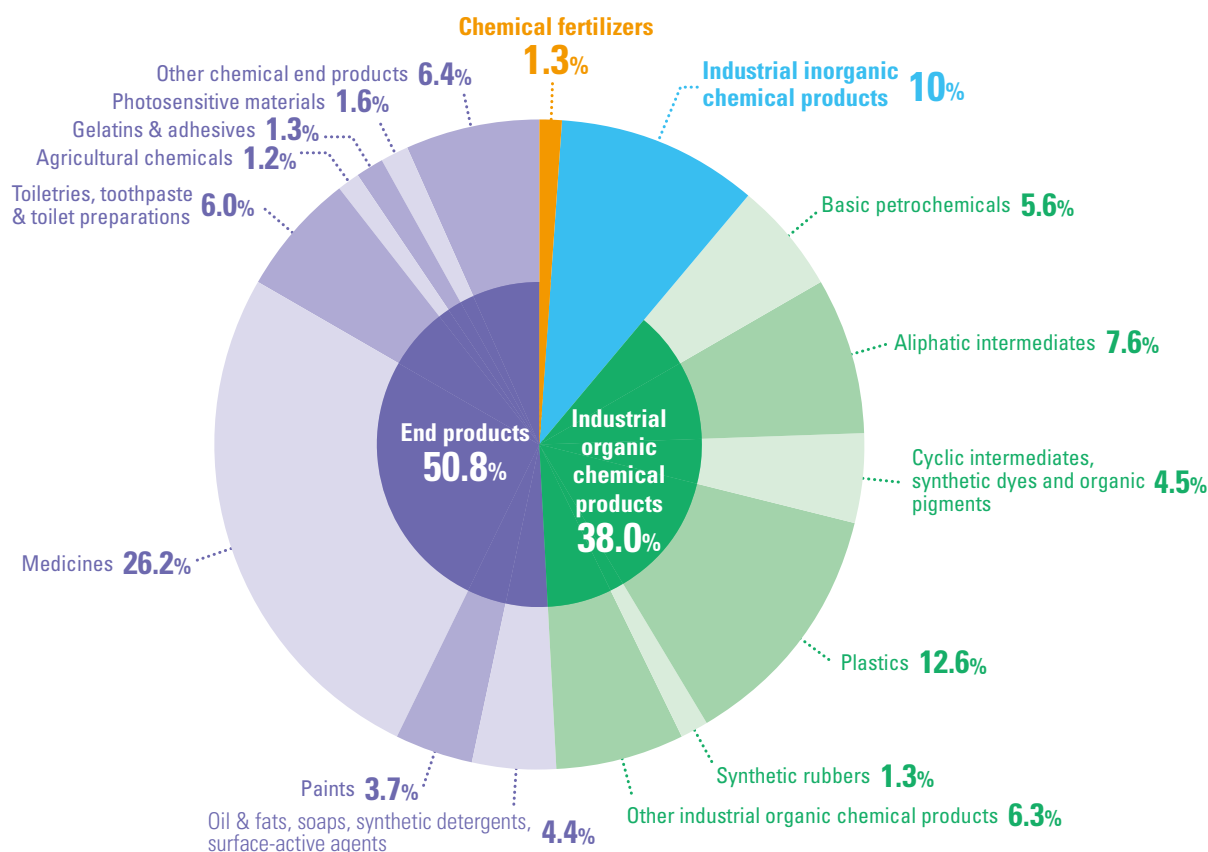


Industry	Year	Every 5th year				Recent three years		
		2000	2005	2010	2015	2020	2021	2022
Chemical fertilizers		1.2	1.1	1.2	1.1	1.0	1.0	1.3
Industrial inorganic chemical products		6.1	6.4	6.9	6.8	8.8	9.5	10.0
Industrial organic chemical products		35.0	37.7	39.7	39.5	32.9	37.1	38.0
▶ Basic petrochemicals		2.9	6.3	6.6	5.9	5.6	6.7	5.6
▶ Aliphatic intermediates		7.1	6.1	5.9	5.4	4.8	6.0	7.6
▶ Cyclic intermediates, synthetic dyes and organic pigments		6.1	7.6	6.8	7.4	3.5	4.5	4.5
▶ Plastics		13.6	11.0	13.2	12.8	11.3	11.9	12.6
▶ Synthetic rubbers		1.5	2.0	1.6	1.9	1.4	1.4	1.3
▶ Other industrial organic chemical products		3.8	4.7	5.5	6.0	6.3	6.7	6.3
Chemical fibers		3.1	1.8	-	-	-	-	-
End products		54.6	53.0	52.2	52.7	57.3	52.4	50.8
▶ Oil & fats, soaps, synthetic detergents, surface-active agents		3.5	4.1	4.2	3.9	4.5	4.3	4.4
▶ Paints		4.1	3.7	4.0	3.5	3.5	3.7	3.7
▶ Medicines		27.0	28.0	28.1	29.2	31.0	27.7	26.2
▶ Toiletries, toothpaste & toilet preparations		6.0	5.6	5.3	5.4	7.3	6.7	6.0
▶ Agricultural chemicals		1.4	1.1	1.0	1.2	1.3	1.3	1.2
▶ Gelatins & adhesives		1.0	1.0	1.2	1.2	1.4	1.4	1.3
▶ Photosensitive materials		4.4	2.5	1.7	1.2	1.0	1.0	1.6
▶ Other chemical end products		7.2	7.0	6.8	7.2	7.3	6.3	6.4
Chemical industry		100.0	100.0	100.0	100.0	100.0	100.0	100.0
Chemical industry		63.6	64.1	65.3	65.2	64.8	65.9	66.9
Plastic products		28.1	27.9	27.2	26.8	28.5	27.1	25.9
Rubber products		8.3	7.9	7.5	8.0	6.8	7.0	7.3
Chemical industry including plastic & rubber products		100.0	100.0	100.0	100.0	100.0	100.0	100.0

(Source) Since 2021, Ministry of Economy, Trade and Industry [Annual Business Survey (Excludes private management)]

(Note) Chemical fibers have been moved to textile industry since 2008.

Composition of chemical products shipped in 2022



(Source) Ministry of Economy, Trade and Industry [Annual Business Survey (Excludes private management)]

Major chemical industry indices with breakdown by product in 2022

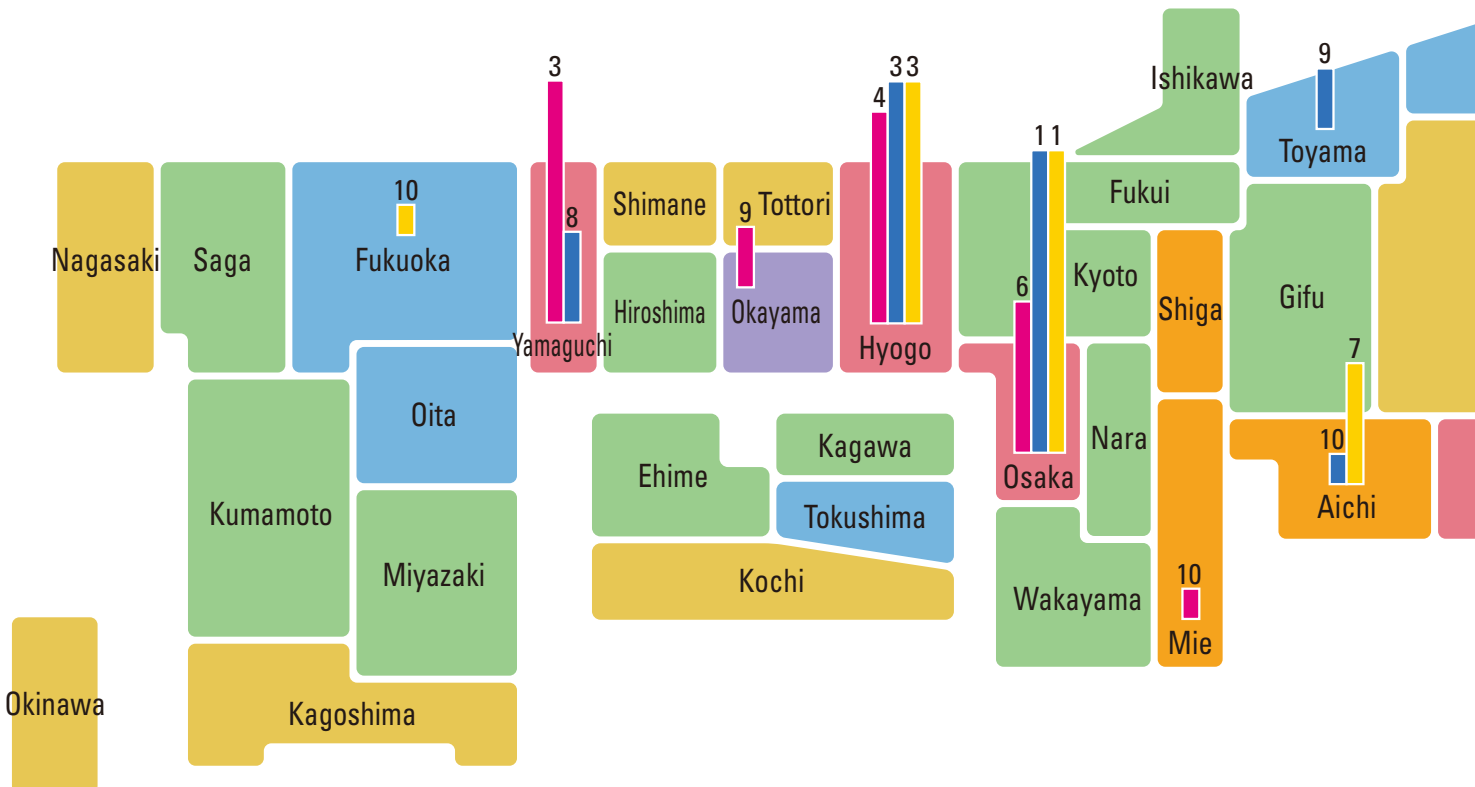
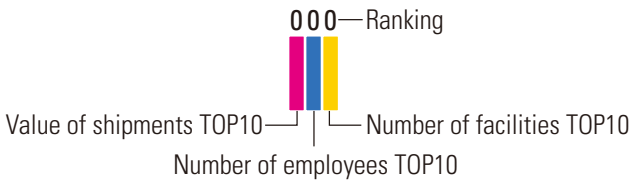
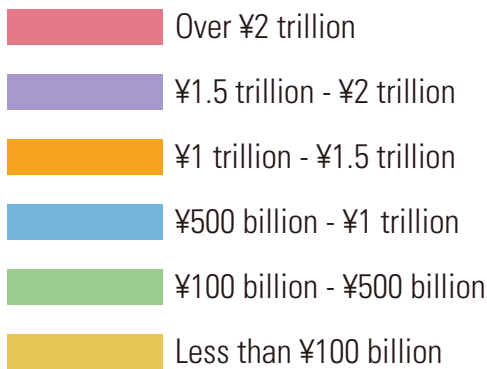
Industry	Major indices, Composition							
	Number of facilities		Number of employees		Value of shipments		Amount of value added	
		%	(Persons)	%	(¥ billion)	%	(¥ billion)	%
Chemical fertilizers	218	3.8	4,943	1.3	429	1.3	104	0.9
Industrial inorganic chemical products	992	17.5	36,897	9.3	3,434	10.0	865	7.1
Industrial organic chemical products	875	15.4	104,821	26.5	13,019	38.0	3,395	27.9
▶ Basic petrochemicals	7	0.1	3,896	1.0	1,930	5.6	257	2.1
▶ Aliphatic intermediates	77	1.4	15,080	3.8	2,612	7.6	721	5.9
▶ Cyclic intermediates, synthetic dyes and organic pigments	130	2.3	13,743	3.5	1,530	4.5	363	3.0
▶ Plastics	286	5.0	38,264	9.7	4,332	12.6	1,191	9.8
▶ Synthetic rubbers	19	0.3	4,940	1.2	443	1.3	92	0.8
▶ Other industrial organic chemical products	356	6.3	28,898	7.3	2,172	6.3	771	6.3
End products	3,579	63.2	248,643	62.9	17,400	50.8	7,819	64.2
▶ Oil & fats, soaps, synthetic detergents, surface-active agents	350	6.2	17,530	4.4	1,518	4.4	634	5.2
▶ Paints	458	8.1	16,916	4.3	1,269	3.7	469	3.8
▶ Medicines	799	14.1	105,177	26.6	8,977	26.2	4,363	35.8
▶ Toiletries, toothpaste & toilet preparations	687	12.1	49,617	12.6	2,063	6.0	1,090	8.9
▶ Agricultural chemicals	90	1.6	5,105	1.3	411	1.2	154	1.3
▶ Gelatins & adhesives	150	2.6	6,342	1.6	433	1.3	135	1.1
▶ Photosensitive materials	40	0.7	8,599	2.2	548	1.6	227	1.9
▶ Other chemical end products	1,005	17.7	39,357	10.0	2,181	6.4	747	6.1
Chemical industry	5,664	100.0	395,304	100.0	34,281	100.0	12,183	100.0
Chemical industry	5,664	25.9	395,304	41.2	34,281	66.9	12,183	66.5
Plastic products	13,803	63.1	450,321	46.9	13,253	25.9	4,696	25.6
Rubber products	2,391	10.9	114,710	11.9	3,719	7.3	1,446	7.9
Chemical industry including plastic & rubber products	21,858	100.0	960,335	100.0	51,253	100.0	18,325	100.0

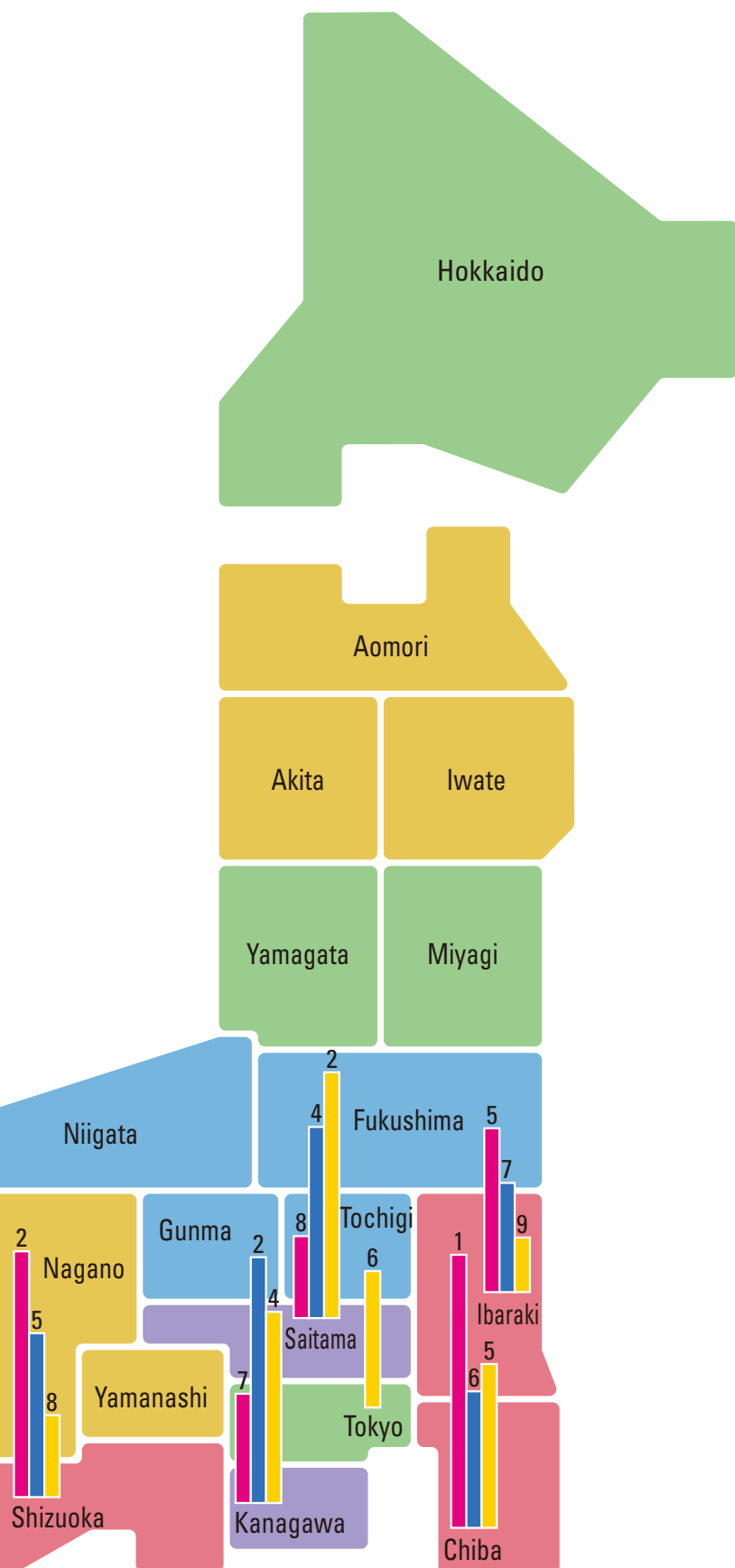
(Source) Ministry of Economy, Trade and Industry [Annual Business Survey (Excludes private management)]

(Note) The number of establishments and employees is as of June 1, 2023.

Shipment, number of employed workers and number of facilities by prefecture

Shipment, number of employed workers and number of facilities by prefecture in 2022





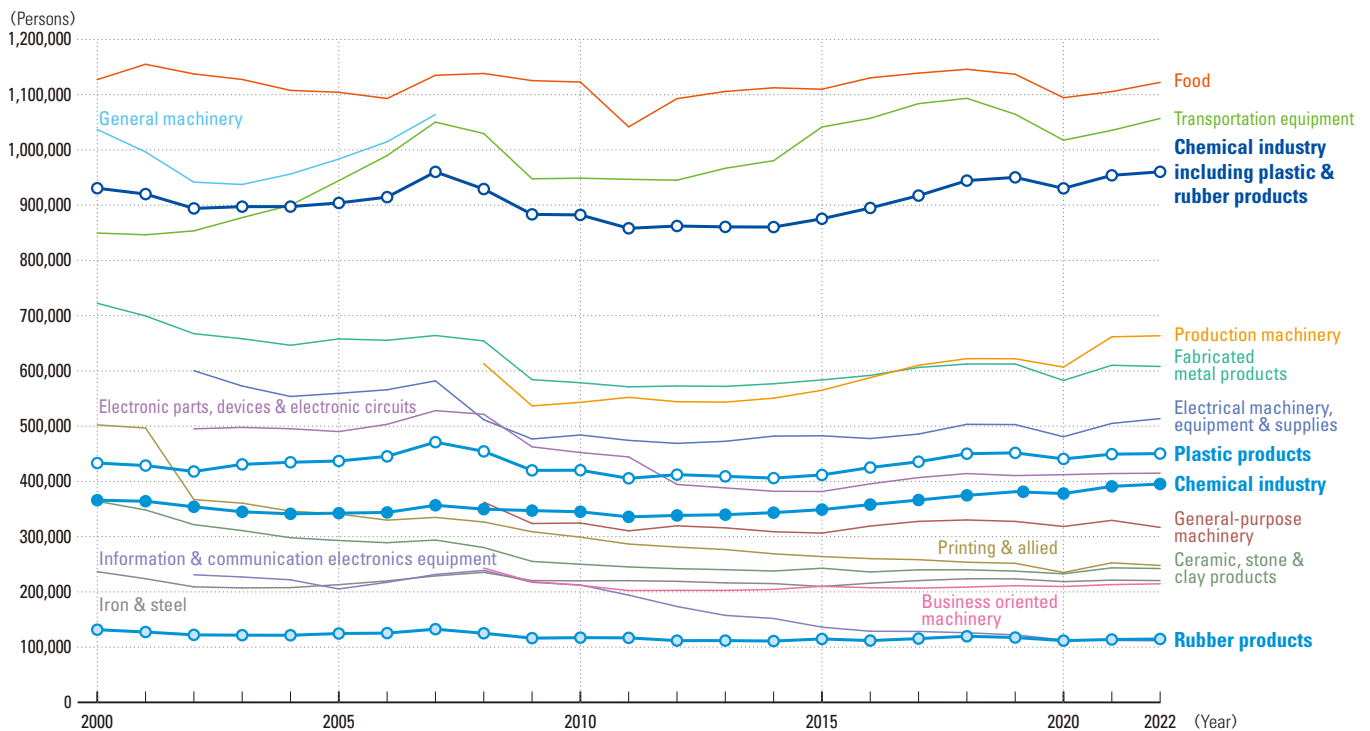
Prefecture	Value of shipments (¥100million)	Change from 2020	Number of employees	Number of facilities
1 Chiba	27,624	112.5%	22,227	295
2 Shizuoka	25,741	113.3%	23,769	232
3 Yamaguchi	24,680	108.2%	17,502	107
4 Hyogo	23,325	107.1%	24,074	343
5 Ibaraki	21,230	112.8%	17,831	212
6 Osaka	20,525	115.5%	32,151	649
7 Kanagawa	19,965	104.0%	24,476	314
8 Saitama	16,196	94.5%	24,046	408
9 Okayama	16,159	126.8%	12,343	128
10 Mie	14,224	105.5%	15,258	146
11 Aichi	13,998	100.3%	16,088	286
12 Shiga	13,818	109.2%	8,999	121
13 Niigata	8,691	109.0%	8,348	82
14 Gunma	8,500	116.9%	11,189	104
15 Tochigi	7,242	107.3%	7,778	93
16 Tokushima	7,120	96.7%	7,298	47
17 Toyama	7,018	97.0%	16,107	127
18 Fukushima	6,892	103.4%	9,063	103
19 Oita	6,812	116.3%	3,171	46
20 Fukuoka	5,668	99.7%	9,264	158
21 Wakayama	4,892	111.0%	6,803	90
22 Ehime	4,328	115.2%	4,063	54
23 Tokyo	4,060	93.5%	10,792	288
24 Hiroshima	4,031	105.2%	6,313	112
25 Gifu	3,418	108.3%	6,286	119
26 Fukui	2,888	123.8%	3,856	66
27 Yamagata	2,790	94.8%	3,969	36
28 Hokkaido	2,155	113.0%	3,684	127
29 Kumamoto	2,094	105.3%	5,124	55
30 Ishikawa	2,088	130.3%	2,544	37
31 Kagawa	2,008	120.2%	4,562	60
32 Saga	2,004	113.8%	2,829	42
33 Kyoto	1,998	85.7%	6,061	139
34 Miyazaki	1,963	104.1%	2,180	39
35 Nara	1,283	105.6%	3,571	76
36 Miyagi	1,017	103.6%	1,429	47
37 Nagano	931	67.7%	1,962	60
38 Iwate	691	116.7%	1,518	23
39 Akita	672	99.4%	2,136	20
40 Yamanashi	533	105.7%	1,107	25
41 Aomori	441	118.7%	503	20
42 Shimane	403	105.7%	1,074	14
43 Kagoshima	272	113.1%	393	29
44 Nagasaki	144	102.5%	365	22
45 Kochi	111	93.2%	390	17
46 Okinawa	87	109.0%	598	37
47 Tottori	81	152.9%	210	9
Total	342,811	108.1%	395,304	5,664

(Source) Ministry of Economy, Trade and Industry (Annual Business Survey (Excludes private management))
 (Note) The number of establishments and employees is as of June 1, 2023.

Number of employed workers

About 960,000 workers are employed making the industry to rank 3rd among manufacturing industries.

Changes in the number of employees by manufacturing industry (2000-2022)



Industry	Year	Every 5th year				Recent three years			(Persons)
		2000	2005	2010	2015	2020	2021	2022	
Chemical industry		365,953	342,481	344,968	348,895	377,971	390,918	395,304	5.1%
Plastic products		433,177	436,897	420,179	411,676	440,660	449,270	450,321	5.8%
Rubber products		131,532	124,613	117,176	114,775	111,724	113,806	114,710	1.5%
Chemical industry including plastic & rubber products		930,662	903,991	882,323	875,346	930,355	953,994	960,335	12.4%
Food		1,127,177	1,104,292	1,122,817	1,109,819	1,094,454	1,105,543	1,122,274	14.5%
Printing & allied		502,184	340,890	299,038	263,891	235,105	252,593	247,854	3.2%
Ceramic, stone & clay products		363,997	293,013	250,001	242,816	232,706	243,516	242,236	3.1%
Iron & steel		236,525	213,056	219,983	209,748	218,553	221,240	220,443	2.8%
Fabricated metal products		722,425	657,942	578,559	583,664	582,642	610,218	607,992	7.8%
General machinery		1,037,079	983,449	-	-	-	-	-	-
General-purpose machinery		-	-	324,636	306,415	318,401	329,433	316,689	4.1%
Production machinery		-	-	543,070	564,958	606,843	661,660	663,565	8.6%
Business oriented machinery		-	-	211,834	210,084	209,694	213,168	214,635	2.8%
Electronic parts, devices & electronic circuits		-	490,140	452,169	381,686	412,146	414,194	414,872	5.4%
Electrical machinery, equipment & supplies		1,573,683	559,413	483,979	482,552	480,830	504,943	513,626	6.6%
Information & communication electronics equipment		-	205,331	212,466	136,141	112,986	112,178	111,419	1.4%
Transportation equipment		849,517	944,352	948,824	1,041,452	1,017,610	1,035,398	1,056,926	13.6%
Others		1,840,584	1,461,123	1,134,148	1,089,220	1,013,231	1,056,417	1,059,069	13.7%
Total manufacturing		9,183,833	8,156,992	7,663,847	7,497,792	7,465,556	7,714,495	7,751,935	100.0%

(Source) Since 2021, Ministry of Economy, Trade and Industry [Annual Business Survey (Excludes private management)]

(Note) 1 Electrical machinery was divided into electronic parts & devices, electrical machinery, and information & communication electronics equipment in 2002.

General machinery was divided into general-purpose machinery, production machinery, and business oriented machinery in 2008.

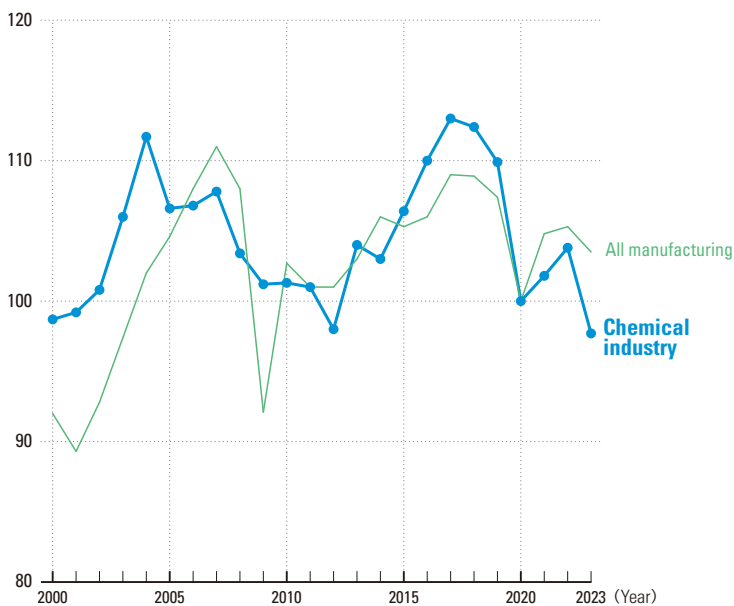
Electronic circuits have been added to electronic parts & devices since 2011.

2 Since 2015, the number of employees is as of June 1, the following year.

Labor productivity/Working hours

Index of labor productivity (2000-2023)

(Index, 2020=100)



(Index, 2020=100)

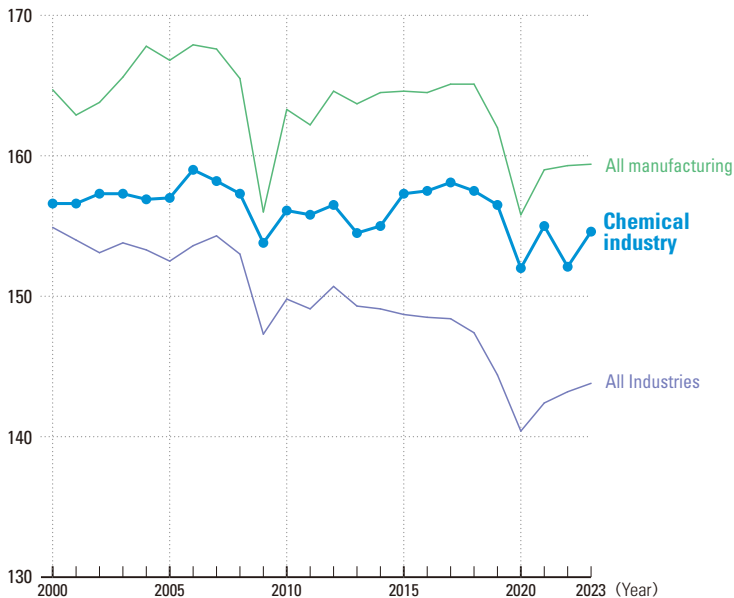
Industry		All manufacturing		Chemical industry	
		Index	Increase rate	Index	Increase rate
Every 5th year	2005	104.6	2.2%	106.6	▲4.6%
	2010	102.7	11.5%	101.3	0.1%
	2015	105.3	▲0.4%	106.4	3.5%
	2020	100.0	▲6.9%	100.0	▲9.0%
Recent three years	2021	104.8	4.8%	101.8	1.8%
	2022	105.3	0.4%	103.8	2.0%
	2023	103.5	▲1.7%	97.7	▲5.9%

(Source) Japan Productivity Center

(Note) Petroleum & coal products manufacturing industry is included in the chemical industry.

Working hours (monthly average of total net working hours) (2000-2023)

(Hours)



(Hours)

Industry		All industries	All manufacturing	Chemical industry
Every 5th year	2005	152.5	166.8	157.0
	2010	149.8	163.3	156.1
	2015	148.7	164.6	157.3
	2020	140.4	155.8	152.0
Recent three years	2021	142.4	159.0	155.0
	2022	143.2	159.3	152.1
	2023	143.8	159.4	154.6

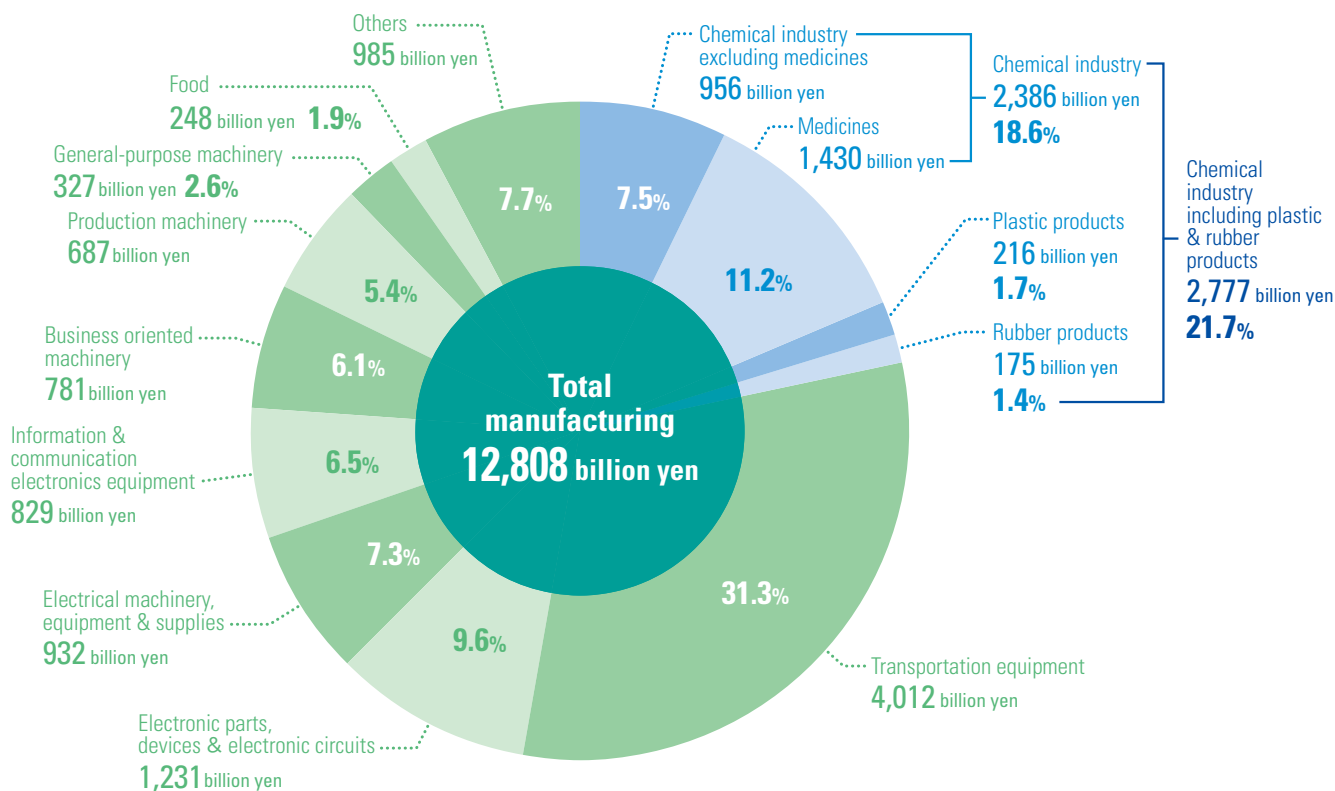
(Source) Ministry of Health, Labour and Welfare [Monthly Labour Survey]

(Note) Petroleum & coal products manufacturing industry is included in the chemical industry.

Research and development expenditures

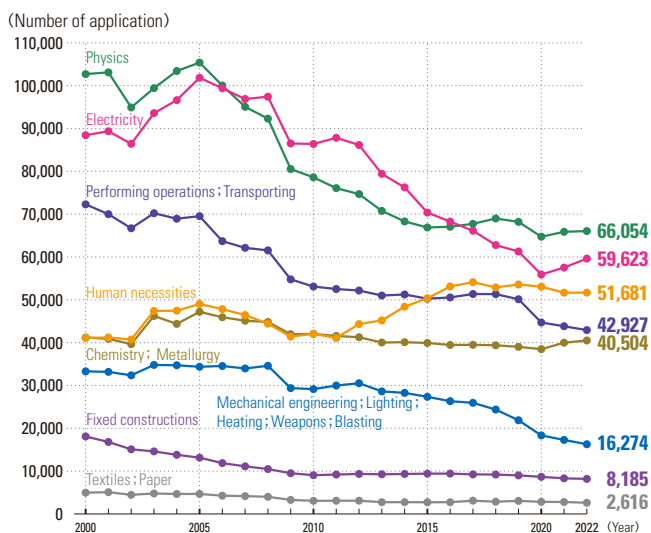
R&D expenditures of chemical industry amounted to 2.8 trillion yen.

Ratio of R&D expenditures by manufacturing industry in FY2022



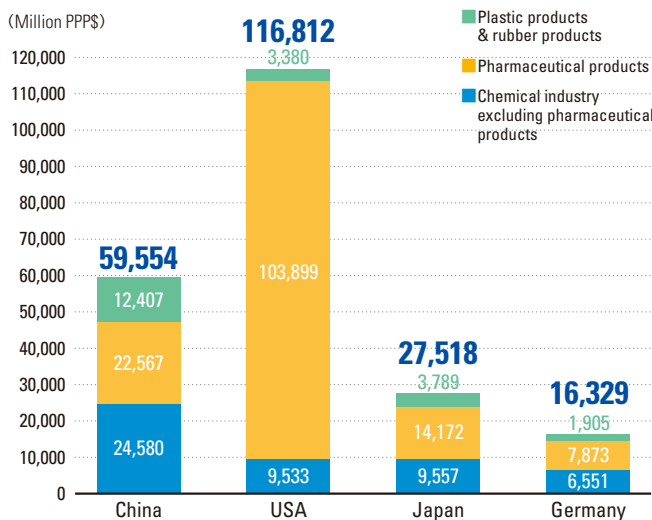
(Source) Ministry of Internal Affairs and Communications [Survey of Research and Development]

Trend of number of applications for patents by classification (2000-2022)



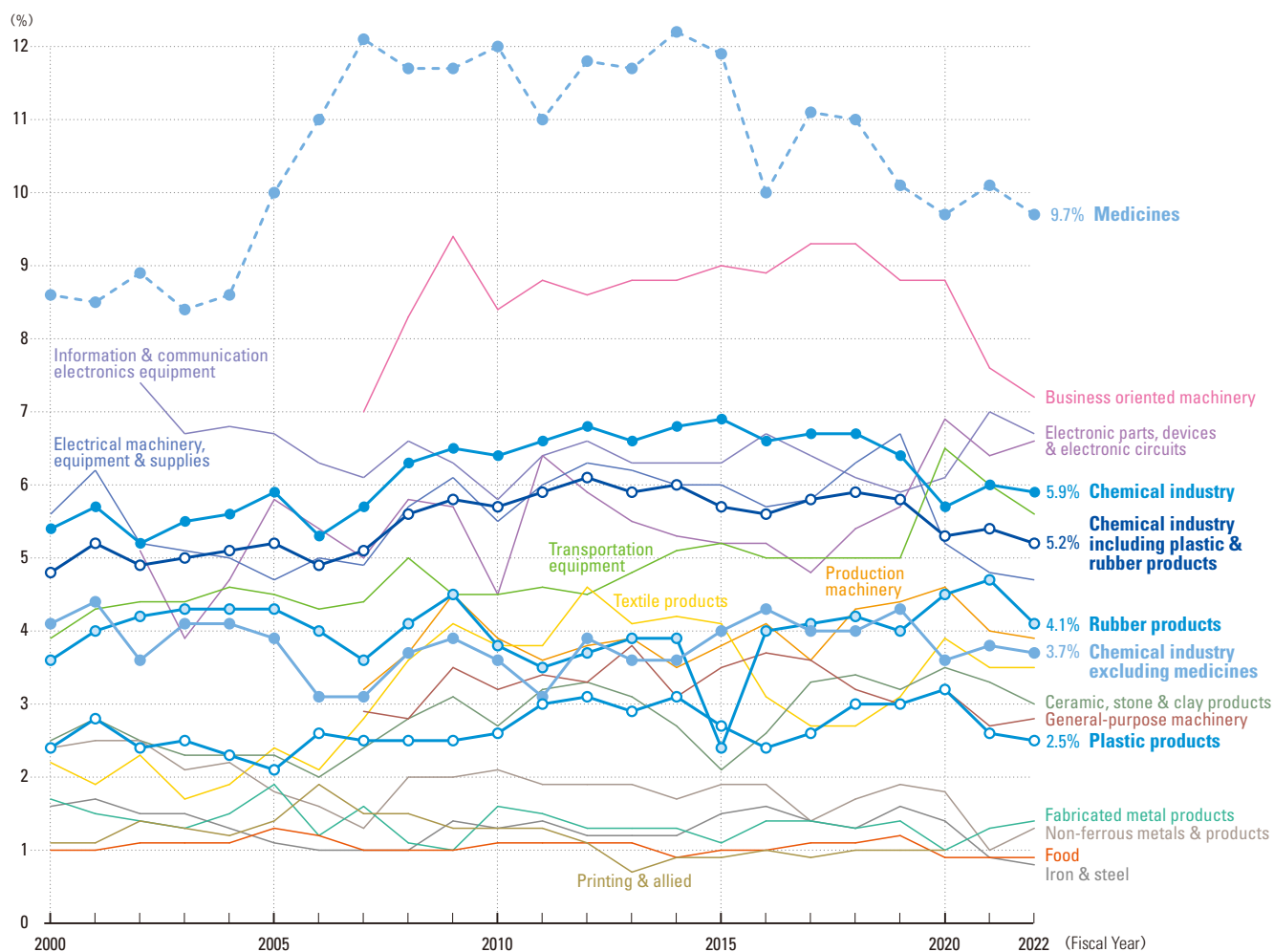
(Source) Japan Patent Office [Japan Patent Office Annual Report]

R&D expenditures of chemical industry in the top four countries in shipment (2021)



(Source) OECD [OECD Data Explorer]
(Note) PPP: Purchasing Power Parity

Ratio of R&D expenditures to sales by manufacturing industry (FY2000-FY2022)



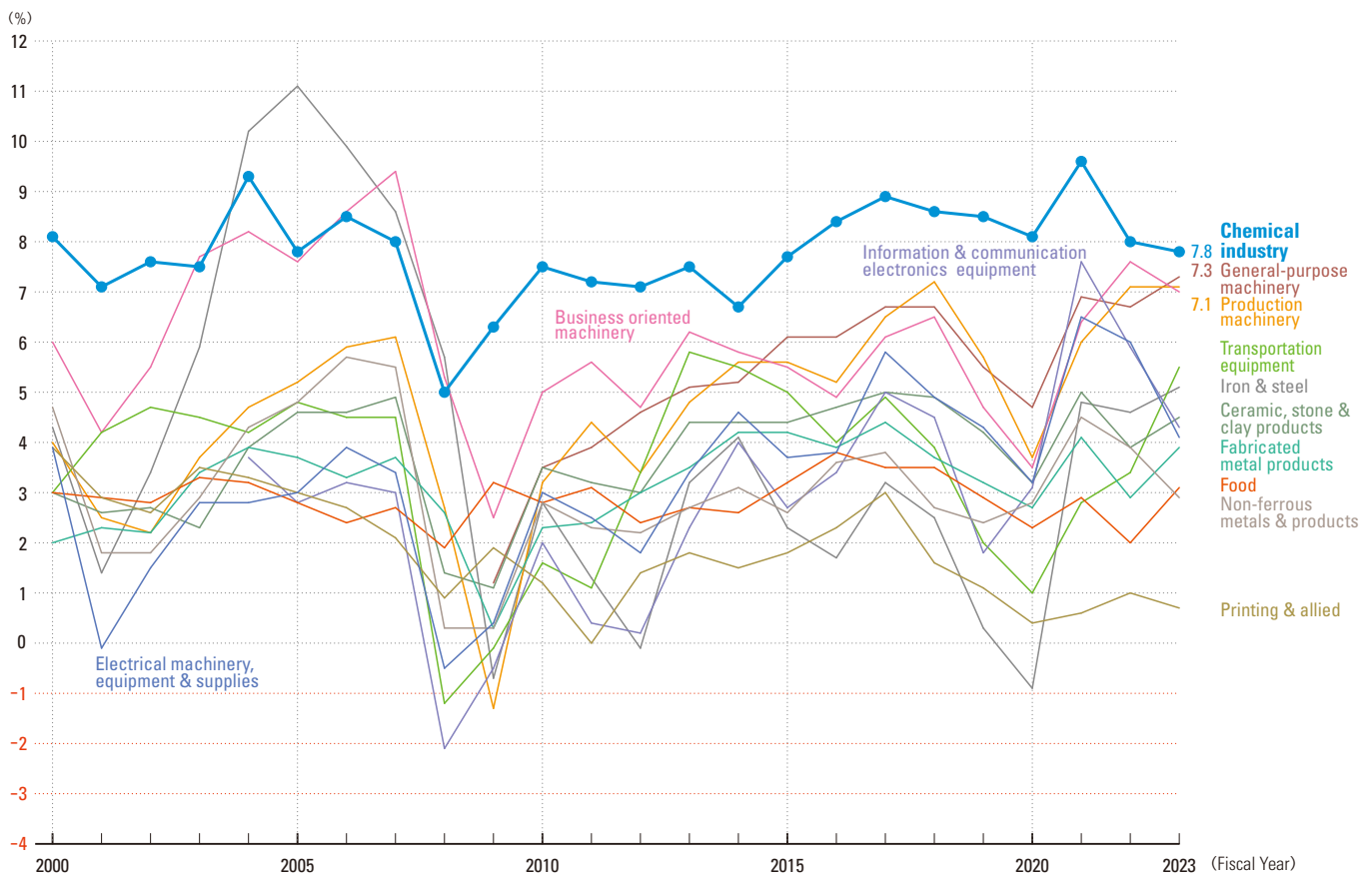
Industry	Fiscal year	Every 5th year				Recent three years		
		2000	2005	2010	2015	2020	2021	2022
Chemical industry		5.4	5.9	6.4	6.9	5.7	6.0	5.9
Chemical industry excluding medicines		4.1	3.9	3.6	4.0	3.6	3.8	3.7
Medicines		8.6	10.0	12.0	11.9	9.7	10.1	9.7
Plastic products		2.4	2.1	2.6	2.7	3.2	2.6	2.5
Rubber products		3.6	4.3	3.8	2.4	4.5	4.7	4.1
Chemical industry including plastic & rubber products		4.8	5.2	5.7	5.7	5.3	5.4	5.2
Food		1.0	1.3	1.1	1.0	0.9	0.9	0.9
Textile products		2.2	2.4	3.8	4.1	3.9	3.5	3.5
Printing & allied		1.1	1.4	1.3	0.9	1.0	—	1.1
Ceramic, stone & clay products		2.5	2.3	2.7	2.1	3.5	3.3	3.0
Iron & steel		1.6	1.1	1.3	1.5	1.4	0.9	0.8
Non-ferrous metals & products		2.4	1.8	2.1	1.9	1.8	1.0	1.3
Fabricated metal products		1.7	1.9	1.6	1.1	1.0	1.3	1.4
General-purpose machinery		—	—	3.2	3.5	3.2	2.7	2.8
Production machinery		—	—	3.9	3.8	4.6	4.0	3.9
Business oriented machinery		—	—	8.4	9.0	8.8	7.6	7.2
Electronic parts, devices & electronic circuits		—	5.8	4.5	5.2	6.9	6.4	6.6
Electrical machinery, equipment & supplies		5.6	4.7	5.5	6.0	5.2	4.8	4.7
Information & communication electronics equipment		—	6.7	5.8	6.3	6.1	7.0	6.7
Transportation equipment		3.9	4.5	4.5	5.2	6.5	6.0	5.6
Total manufacturing		3.7	3.9	3.9	4.3	4.4	4.0	3.9

(Source) Ministry of Internal Affairs and Communications [Survey of Research and Development]

Operating profit margin

Chemical industry is the No.1 in operating profit margin.

Trend of operating profit margin by manufacturing industry (FY2000-FY2023)



Industry	Fiscal year	Every 5th year				Recent three years		
		2005	2010	2015	2020	2021	2022	2023
Chemical industry		7.8	7.5	7.7	8.1	9.6	8.0	7.8
Food		2.8	2.8	3.2	2.3	2.9	2.0	3.1
Printing & allied		3.0	1.2	1.8	0.4	0.6	1.0	0.7
Ceramic, stone & clay products		4.6	3.5	4.4	3.2	5.0	3.9	4.5
Iron & steel		11.1	2.8	2.3	-0.9	4.8	4.6	5.1
Non-ferrous metals & products		4.8	2.8	2.6	2.8	4.5	3.9	2.9
Fabricated metal products		3.7	2.3	4.2	2.7	4.1	2.9	3.9
General-purpose machinery		—	3.5	6.1	4.7	6.9	6.7	7.3
Production machinery		5.2	3.2	5.6	3.7	6.0	7.1	7.1
Business oriented machinery		7.6	5.0	5.5	3.5	6.4	7.6	7.0
Electrical machinery, equipment & supplies		3.0	3.0	3.7	3.2	6.5	6.0	4.1
Information & communication electronics equipment		2.8	2.0	2.7	3.1	7.6	5.9	4.3
Transportation equipment		4.8	1.6	5.0	1.0	2.8	3.4	5.5
Total manufacturing		4.5	3.2	4.3	3.1	5.2	4.5	5.1

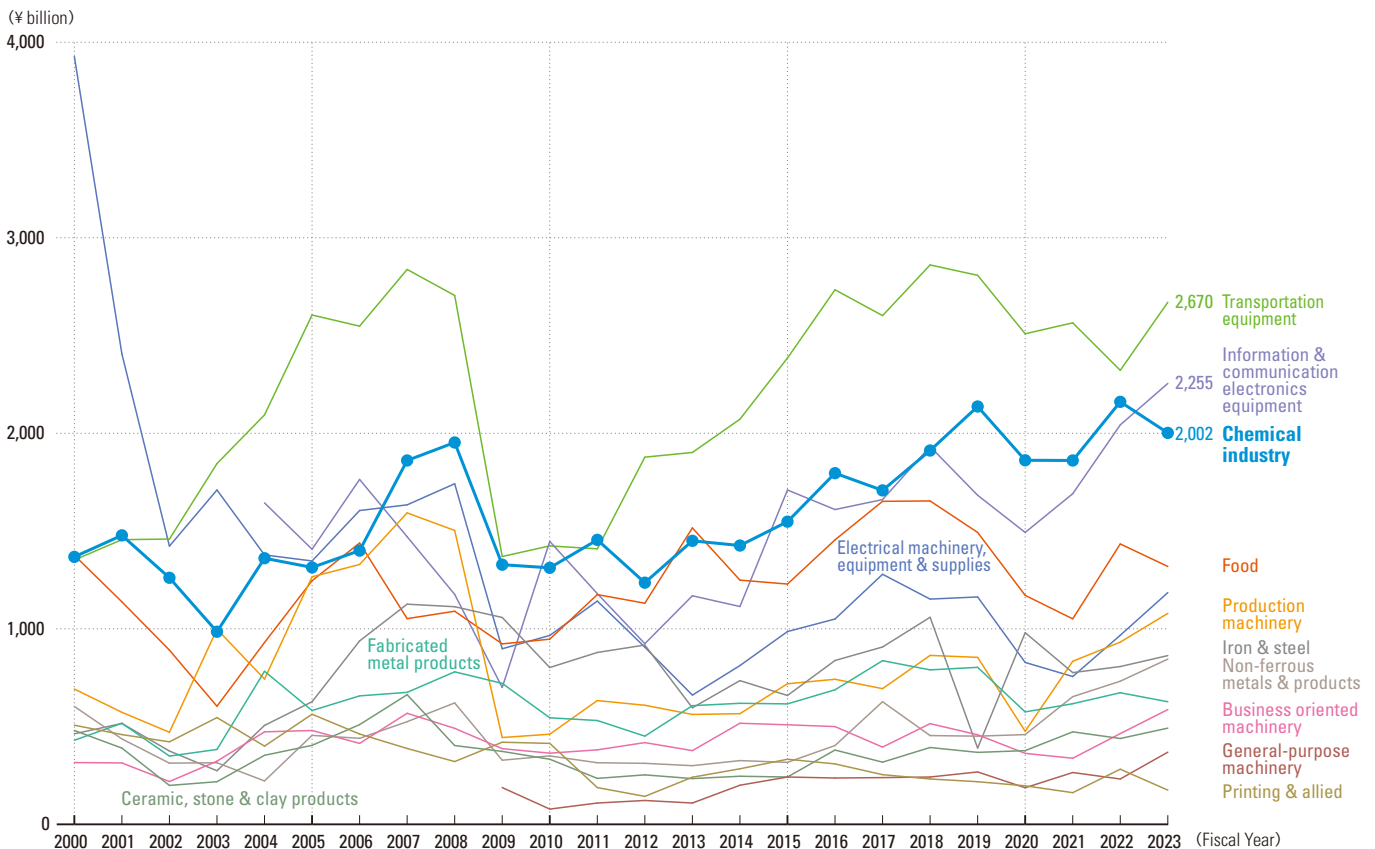
(Source) Ministry of Finance [Financial Statements Statistics of Corporations by Industry]

(Note) Information & communication electronic equipment was newly established in 2004, and general-purpose machinery was newly established in 2009.

Amount of capital investment

Capital investment of chemical industry amounted to 2 trillion yen making it ranked 3rd in manufacturing industries.

Trend of capital investment by manufacturing industry (FY2000-FY2023)



Industry	Fiscal year	Every 5th year				Recent three years			%
		2005	2010	2015	2020	2021	2022	2023	
Chemical industry		1,314	1,312	1,548	1,862	1,861	2,161	2,002	12.1%
Food		1,246	947	1,229	1,171	1,051	1,434	1,319	8.0%
Printing & allied		563	414	333	197	162	282	175	1.1%
Ceramic, stone & clay products		404	333	242	377	473	439	492	3.0%
Iron & steel		627	802	659	980	776	807	863	5.2%
Non-ferrous metals & products		455	350	317	459	653	732	845	5.1%
Fabricated metal products		582	545	616	575	617	673	627	3.8%
General-purpose machinery		—	78	242	187	265	232	369	2.2%
Production machinery		1,266	461	719	476	834	932	1,079	6.5%
Business oriented machinery		480	364	509	363	338	464	587	3.5%
Electrical machinery, equipment & supplies		1,347	966	986	828	756	967	1,185	7.2%
Information & communication electronics equipment		1,407	1,447	1,710	1,493	1,691	2,043	2,255	13.6%
Transportation equipment		2,605	1,424	2,385	2,509	2,565	2,322	2,670	16.1%
Others		2,049	1,828	1,857	1,901	1,929	1,954	2,077	12.6%
Total manufacturing		14,343	11,272	13,351	13,379	13,972	15,443	16,543	100.0%

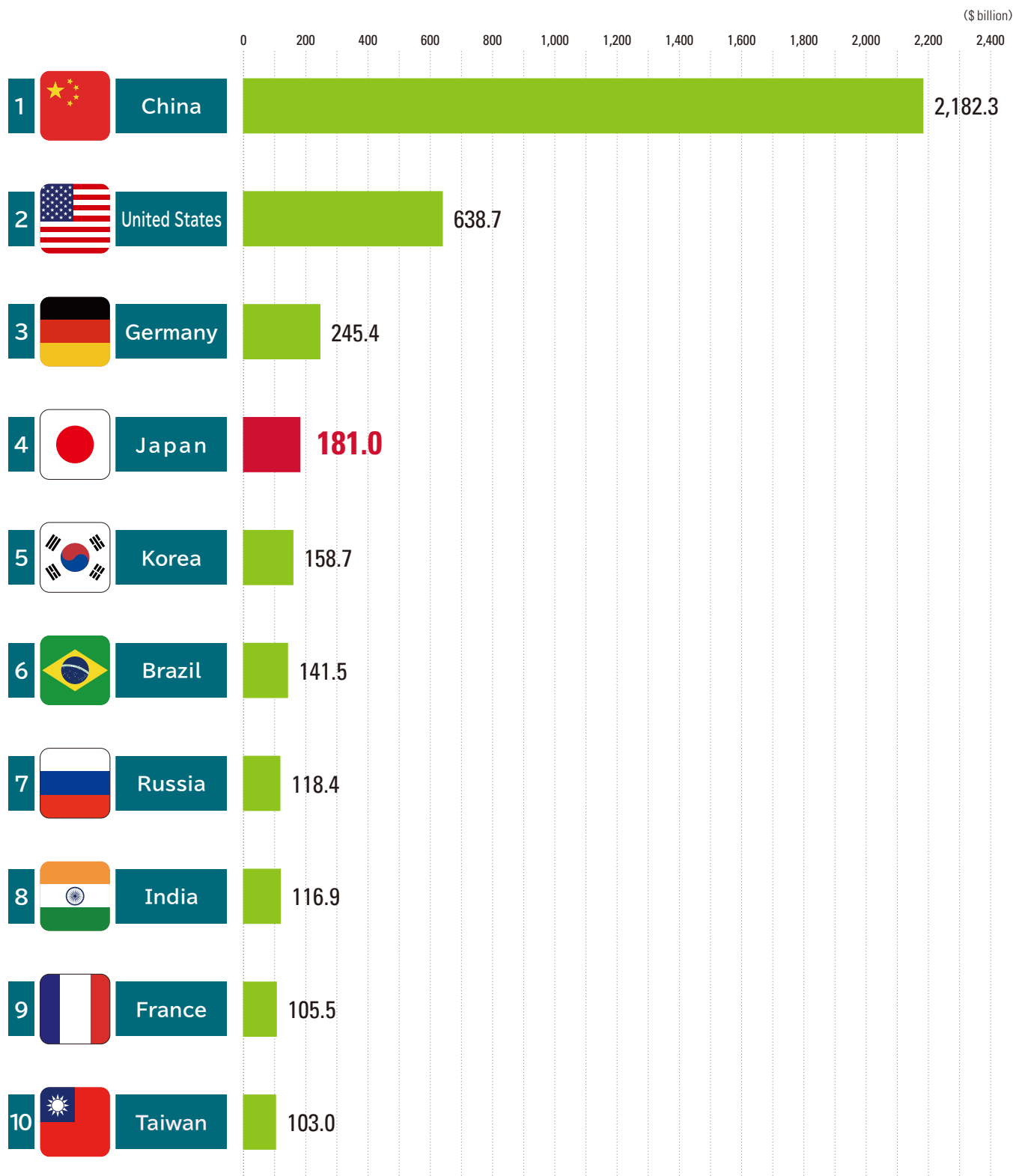
(Source) Ministry of Finance [Financial Statements Statistics of Corporations by Industry]

(Note) Information & communication electronic equipment was newly established in 2004, and general-purpose machinery was newly established in 2009.

Shipments by Country/Region

Japan is the 4th largest in the world.

Chemical Shipments by Country/Region in 2022



(Source) American Chemistry Council
(Note) Pharmaceuticals is excluded.

The world's 30 leading chemical companies

Three Japanese companies are included among the world's leading chemical companies.

The world's 30 leading chemical companies in 2022

Ranking	Company	Country/Region	Chemical sales			Chemical operating profits		
			2022 (\$ million)	Change from 2021 (%)	Chemical sales as of total sales (%)	2022 (\$ million)	Change from 2021 (%)	Operating profit margin (%)
1	BASF	Germany	91,991	11.1	100.0	8,044	-1.6	8.7
2	Sinopec	China	66,862	5.9	13.8	-2,119	n.m.	def.
3	Dow	US	56,902	3.5	100.0	5,702	-27.7	10.0
4	Sabir	Saudi Arabia	48,821	12.9	92.2	6,196	-29.4	12.7
5	ExxonMobil	US	47,498	12.7	11.9	7,356	-43.2	15.5
6	Ineos	England	41,188	15.8	100.0	3,813	-20.2	9.3
7	Formosa Plastics	Taiwan	40,231	-0.6	65.3	N/A	N/A	N/A
8	LG Chem	South Korea	40,150	21.6	100.0	2,319	-40.4	5.8
9	LyondellBasell Industries	US	39,476	1.2	78.2	4,168	-48.0	10.6
10	PetroChina	China	38,314	7.9	8.0	-89	n.m.	def.
11	Hengli Petrochemical	China	31,126	16.1	94.2	N/A	N/A	N/A
12	Air Liquide	France	31,033	28.4	98.4	2,925	18.2	9.4
13	Linde	England	30,602	9.6	91.7	7,349	9.6	24.0
14	Mitsubishi Chemical Group	Japan	29,369	14.4	83.3	1,383	-35.0	4.7
15	Syngenta Group	Switzerland	28,500	14.5	85.3	N/A	N/A	N/A
16	Rongsheng Petrochemical	China	26,607	73.5	61.9	N/A	N/A	N/A
17	Reliance Industries	India	25,225	18.7	20.3	N/A	N/A	N/A
18	Wanhua Chemical	China	24,605	13.8	100.0	3,220	-32.5	13.1
19	Yara	Norway	23,902	43.8	100.0	3,827	258.3	16.0
20	Shin-Etsu Chemical	Japan	21,367	35.4	100.0	7,593	47.6	35.5
21	Shell	England	21,064	24.0	8.1	N/A	N/A	N/A
22	Evonik Industries	Germany	19,475	23.6	100.0	1,245	-9.3	6.4
23	Mosaic	US	19,125	54.8	100.0	5,258	89.8	27.5
24	Indorama Ventures	Thailand	18,989	40.8	100.0	1,418	18.1	7.5
25	Covestro	Germany	18,928	13.0	100.0	259	-89.0	1.4
26	Nutrien	Canada	18,867	62.8	49.8	10,189	111.2	54.0
27	Braskem	Brazil	18,704	-8.6	100.0	1,184	-77.5	6.3
28	Lotte Chemical	South Korea	17,245	22.9	100.0	-590	n.m.	def.
29	Solvay	Belgium	16,929	40.6	100.0	2,388	65.7	14.1
30	Sumitomo Chemical	Japan	16,925	5.6	79.2	654	-50.5	3.9

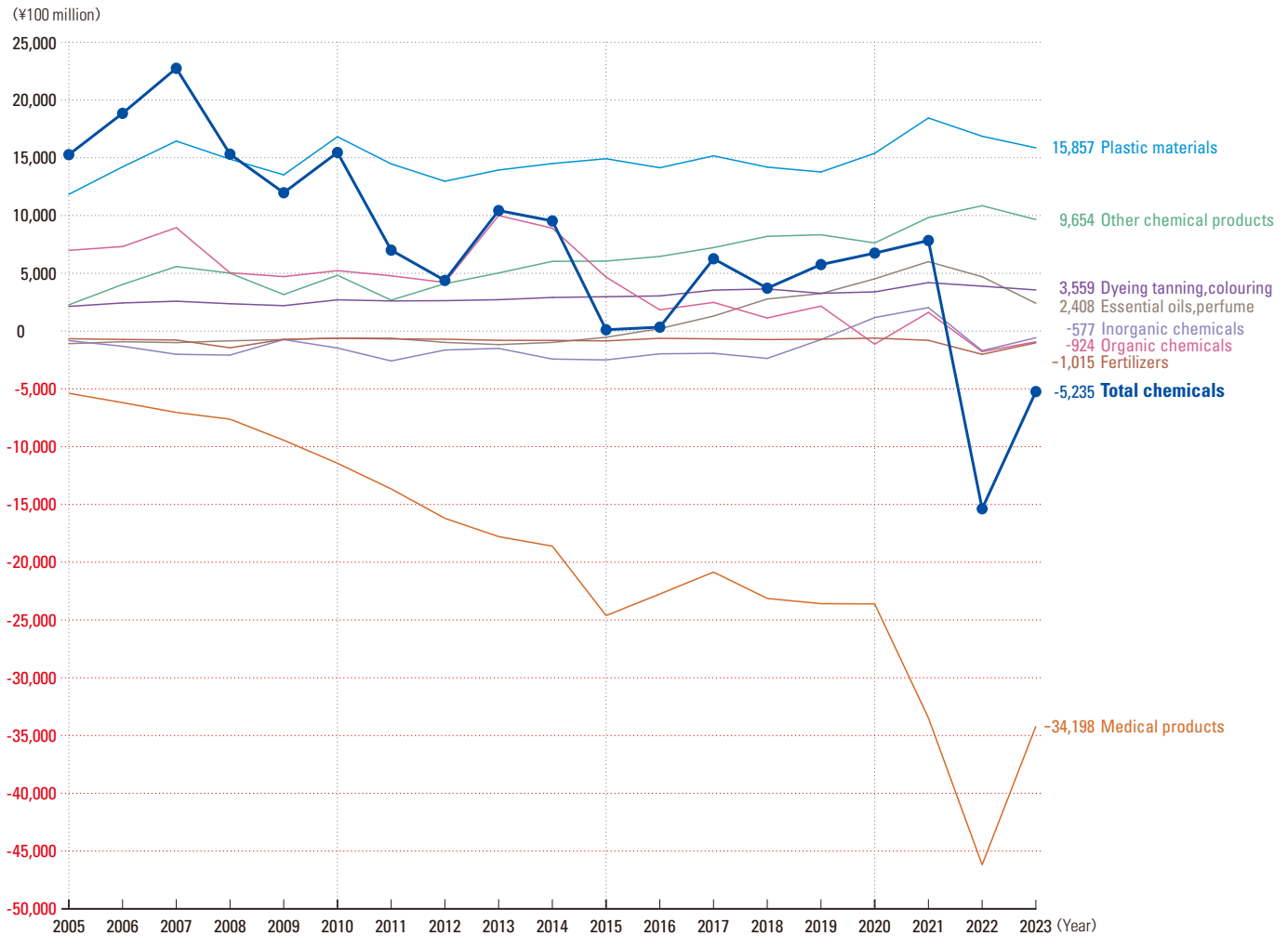
(Source) Chemical and Engineering News

(Note) 1 Pharmaceuticals is excluded.

2 N/A means not available, def. means deficit, and n.m. means not meaningful.

Trade balance

Trade balance of chemicals by product (2005-2023)



(Source) Ministry of Finance [Trade Statistics]

Exports and imports of chemicals (2010-2023)

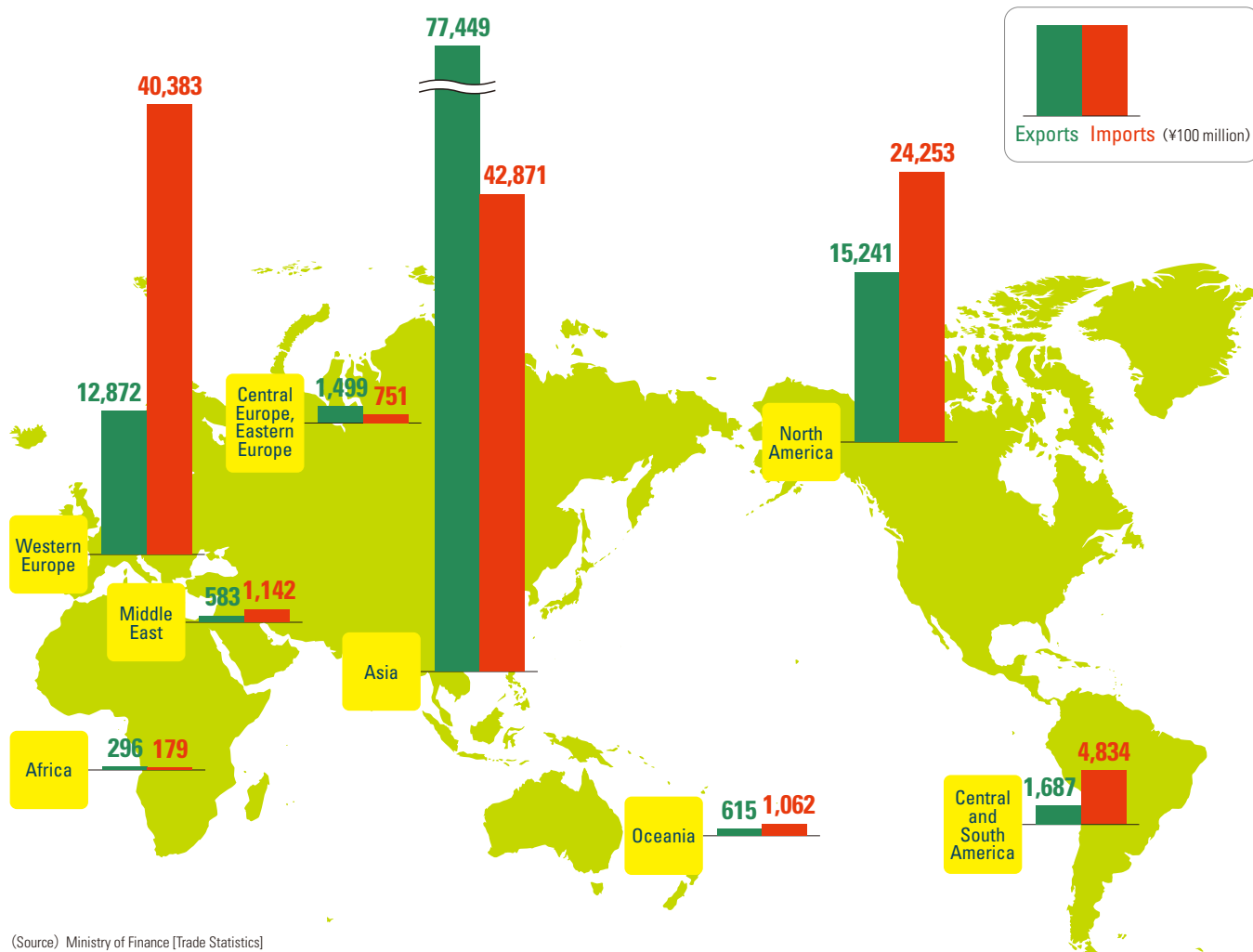
(¥100 million)

Exports						Articles	Imports					
Every 5th year			Recent three years				Every 5th year			Recent three years		
2010	2015	2020	2021	2022	2023		2010	2015	2020	2021	2022	2023
128	142	127	186	246	192	Fertilizers	745	990	731	988	2,258	1,207
3,772	4,034	7,043	10,076	13,217	12,032	Inorganic chemicals	5,237	6,529	5,875	8,044	14,911	12,608
18,728	21,166	15,556	19,819	22,086	20,422	Organic chemicals	13,496	16,499	16,688	18,204	23,867	21,346
23,360	24,441	24,198	29,765	31,545	29,537	Plastic materials	6,542	9,523	8,814	11,323	14,685	13,680
4,048	4,629	4,787	5,807	5,824	5,393	Dyeing tanning, colouring	1,343	1,655	1,393	1,611	1,938	1,834
3,787	4,623	8,360	8,611	11,428	12,304	Medical products	15,226	29,241	31,973	42,085	57,617	46,501
2,479	3,676	9,141	10,954	10,695	8,892	Essential oils, perfume	3,087	4,213	4,619	4,946	5,993	6,484
12,950	14,883	16,125	20,307	22,896	21,470	Other chemical products	8,119	8,828	8,495	10,484	12,044	11,816
69,253	77,594	85,336	105,524	117,938	110,240	Total chemicals	53,794	77,479	78,588	97,686	133,314	115,476

(Source) Ministry of Finance [Trade Statistics]

Exports and imports of chemicals by region

Exports and imports of chemicals by region in 2023



(Source) Ministry of Finance [Trade Statistics]

Exports and imports of chemicals by region (2010-2023)

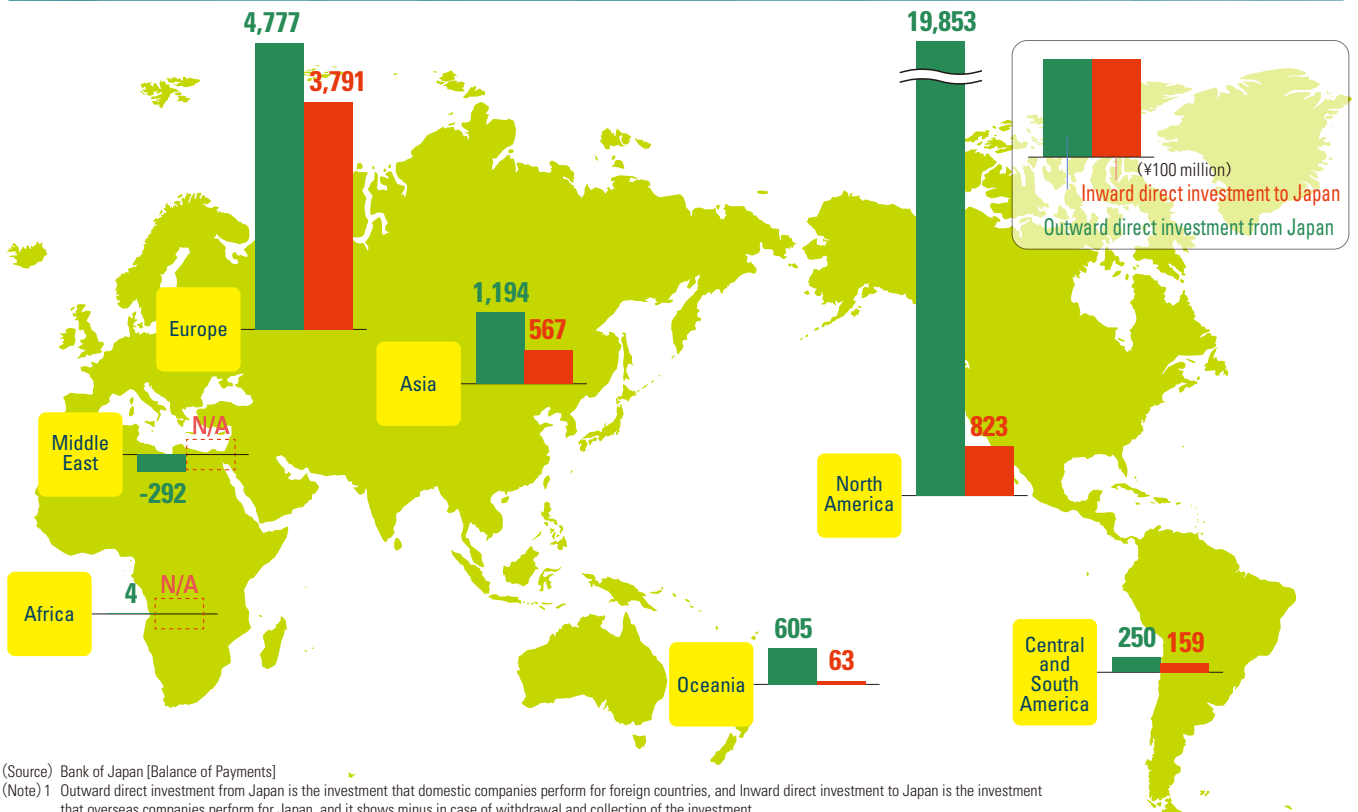
(¥100 million)

Exports						Region	Imports					
Every 5th year			Recent three years				Every 5th year			Recent three years		
2010	2015	2020	2021	2022	2023		2010	2015	2020	2021	2022	2023
51,799	57,502	62,056	77,739	83,581	77,449	Asia	17,474	26,428	27,422	34,978	50,269	42,871
494	460	431	565	829	615	Oceania	595	803	653	810	1,092	1,062
6,824	9,048	9,994	11,756	15,762	15,241	North America	11,190	14,194	15,176	19,202	26,999	24,253
1,819	1,488	1,144	1,567	1,836	1,687	Central and South America	2,013	3,082	3,324	3,316	4,716	4,834
7,084	7,689	9,837	11,422	12,988	12,872	Western Europe	21,413	31,367	30,689	37,611	47,616	40,383
374	425	1,120	1,558	1,970	1,499	Central Europe, Eastern Europe	330	541	597	685	810	751
580	693	437	535	574	583	Middle East	652	880	649	980	1,481	1,142
278	288	317	383	397	296	Africa	128	183	78	102	332	179
69,253	77,594	85,336	105,524	117,938	110,240	Total	53,794	77,479	78,588	97,686	133,314	115,476

(Source) Ministry of Finance [Trade Statistics]

Outward/inward direct investments

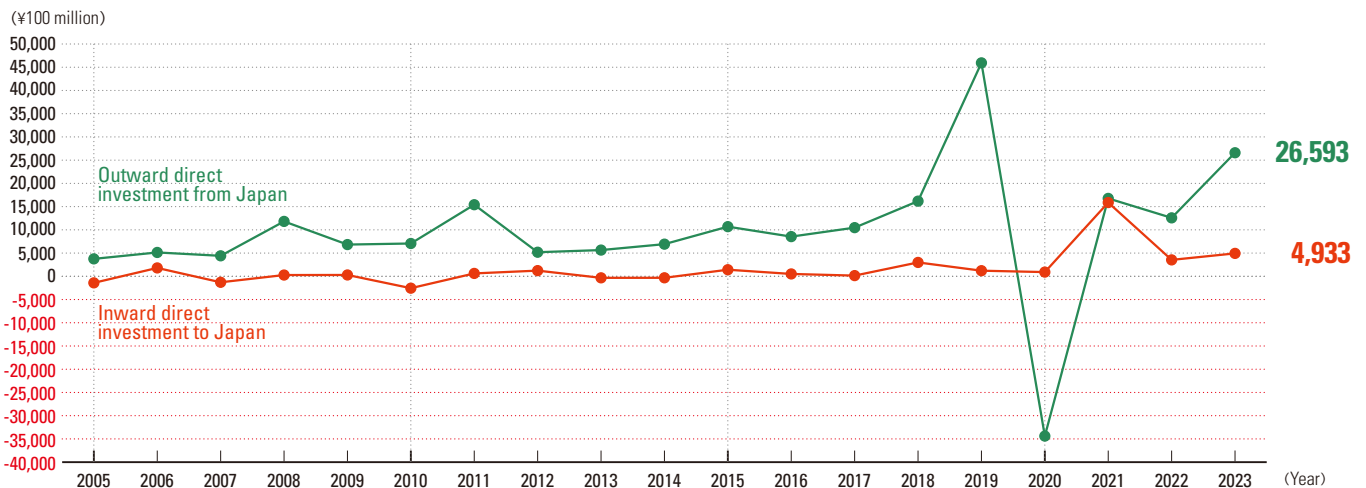
Outward direct investment of Japanese chemical industry and inward direct investment to chemical industry in Japan in 2023



(Source) Bank of Japan [Balance of Payments]

(Note) 1 Outward direct investment from Japan is the investment that domestic companies perform for foreign countries, and Inward direct investment to Japan is the investment that overseas companies perform for Japan, and it shows minus in case of withdrawal and collection of the investment.
2 When there are no reports, it is indicated as "N/A".

Actual outward direct investment of Japanese chemical industry and inward direct investment to chemical industry in Japan (2005-2023)

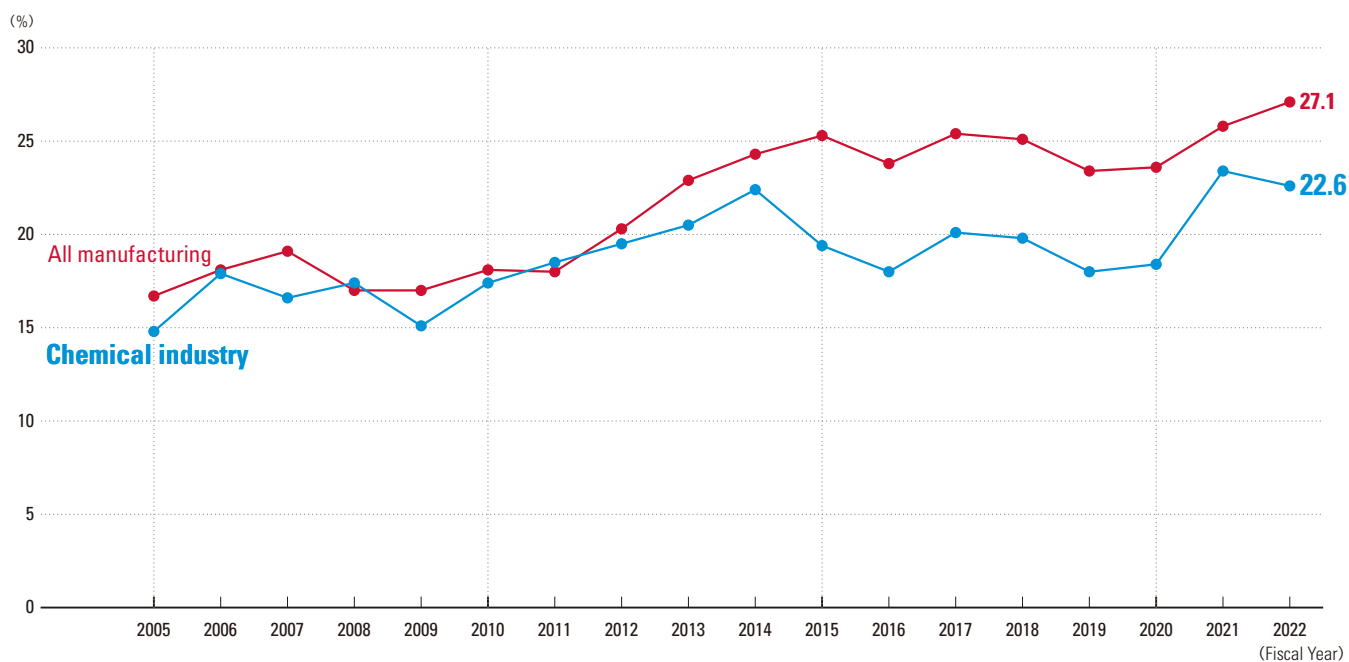


(Source) Bank of Japan [Balance of Payments]

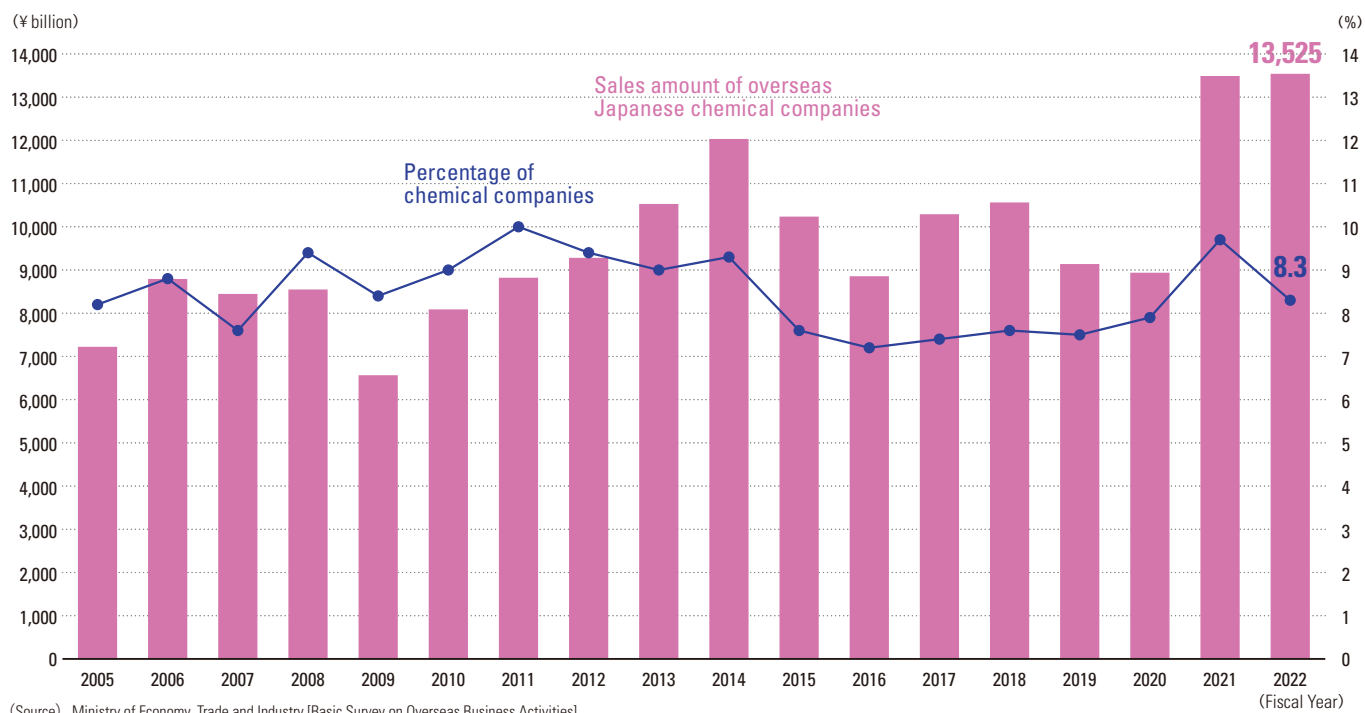
(Note) Outward direct investment from Japan is the investment that domestic companies perform for foreign countries, and Inward direct investment to Japan is the investment that overseas companies perform for Japan, and it shows minus in case of withdrawal and collection of the investment.

Ratio of overseas production/Sales of overseas subsidiary companies

Trend of overseas production of Japanese companies (FY2005-FY2022)



Sales of Japanese chemical companies based overseas and its percentage of all overseas Japanese manufacturing companies' sales (FY2005-FY2022)

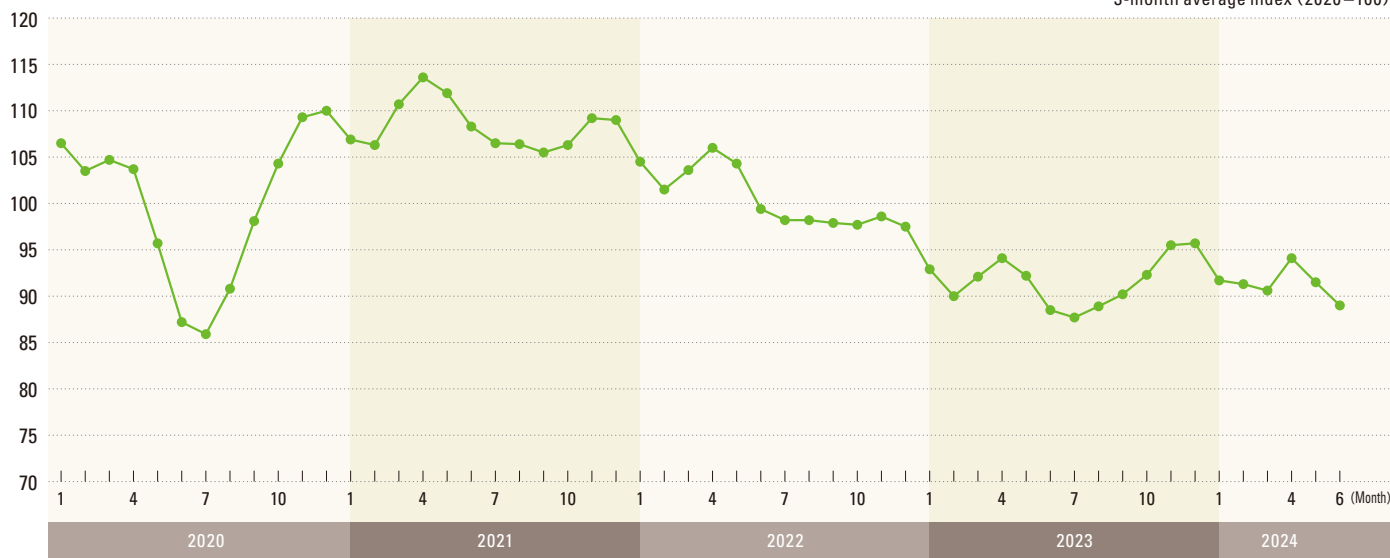


JCIA Index that shows “the current state” of Japanese chemical industry

1 Shipping index of Main Chemicals

This index shows the current status of Japanese chemical industry

3-month average index (2020=100)

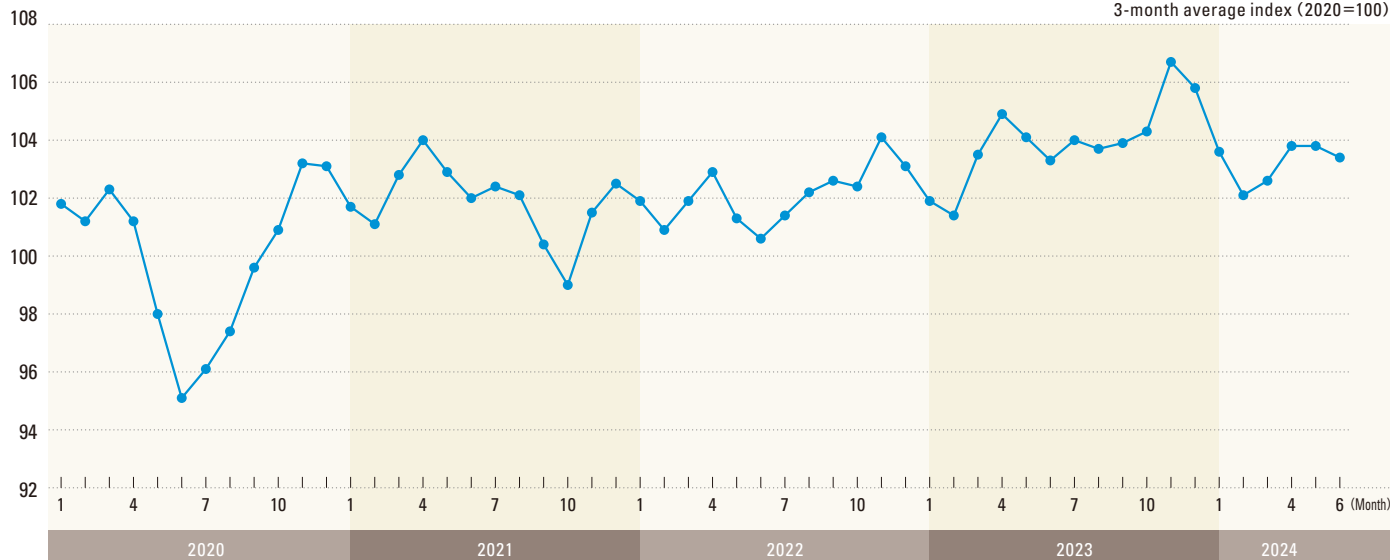


This index is based on the “Current Survey of Production” published by the Ministry of Economy, Trade and Industry. JCIA selected 33 items closely related to the chemical industry in nine fields (plastic, plasticizer, synthetic fiber raw material, synthetic rubber, paint, surfactant, synthetic dye / pigment, chemical fertilizer, inorganic) and an index was created based on the domestic total shipment value excluding the impact of the inventory of major chemical products.

2 Production index Key User Customer Industries

You can read the relationship with production trends of the key user customer industries in Japan by reading together with the Shipping index of Main Chemicals.

3-month average index (2020=100)



The total production value of major products in domestic each industry based on data published by customer association of chemical industry (such as automobiles, electrical, electronics, plastic products, rubber, chemical fibers) is reflected to the index in view of the impact of each industry on the chemical industry.

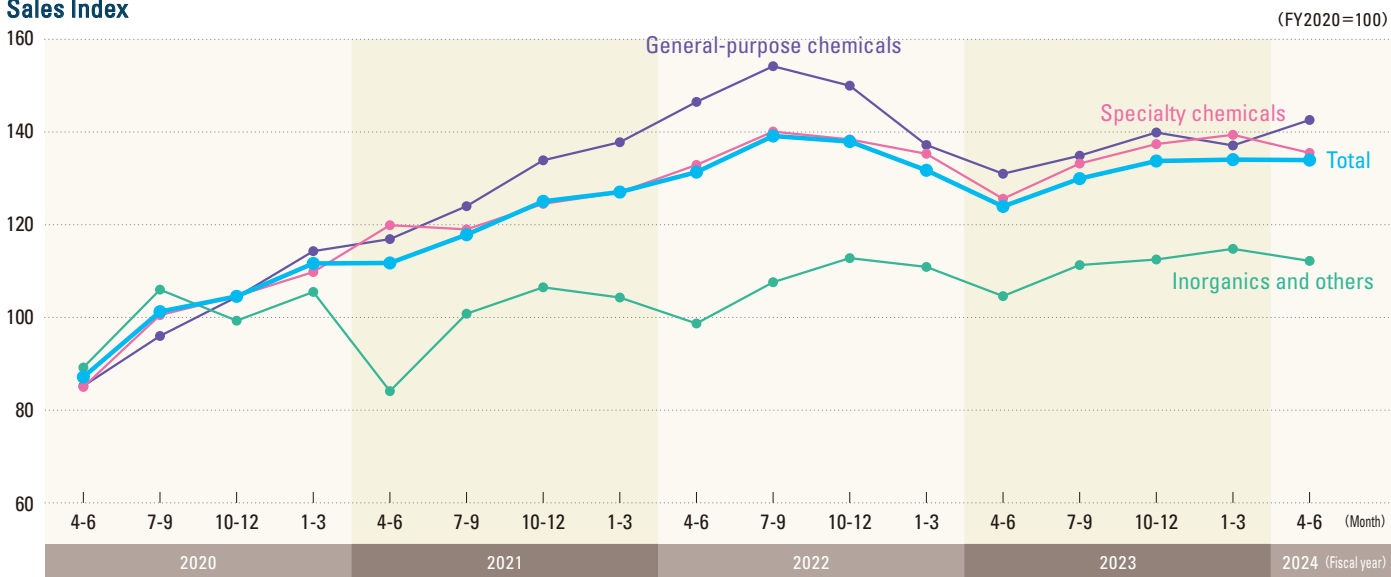
The chemical industry covers a wide range of fields, including petrochemicals, synthetic fibers, synthetic rubber, paints, and pharmaceuticals. So far, we have been able to explain the management status of individual chemical companies to society, however there were no published figures showing the current state of Japanese chemical industry as a whole. Therefore JCIA created the JCIA Index and published in 2017 as an indicator of showing the current status of the entire Japanese chemical industry, so that everyone in society became able to recognize

about the current status of Japanese chemical industry. This index consists of the "Shipping index of Main Chemicals" indicating the shipment status of major chemical products in domestic chemical industry, the "Production index Key User Customer Industries" indicating the production status of customers in domestic chemical industry, and the "Corporate earnings index" indicating the consolidated performance of chemical companies. The latest JCIA Index is made public with the base table for the index on the JCIA website every month, so anyone can see it.

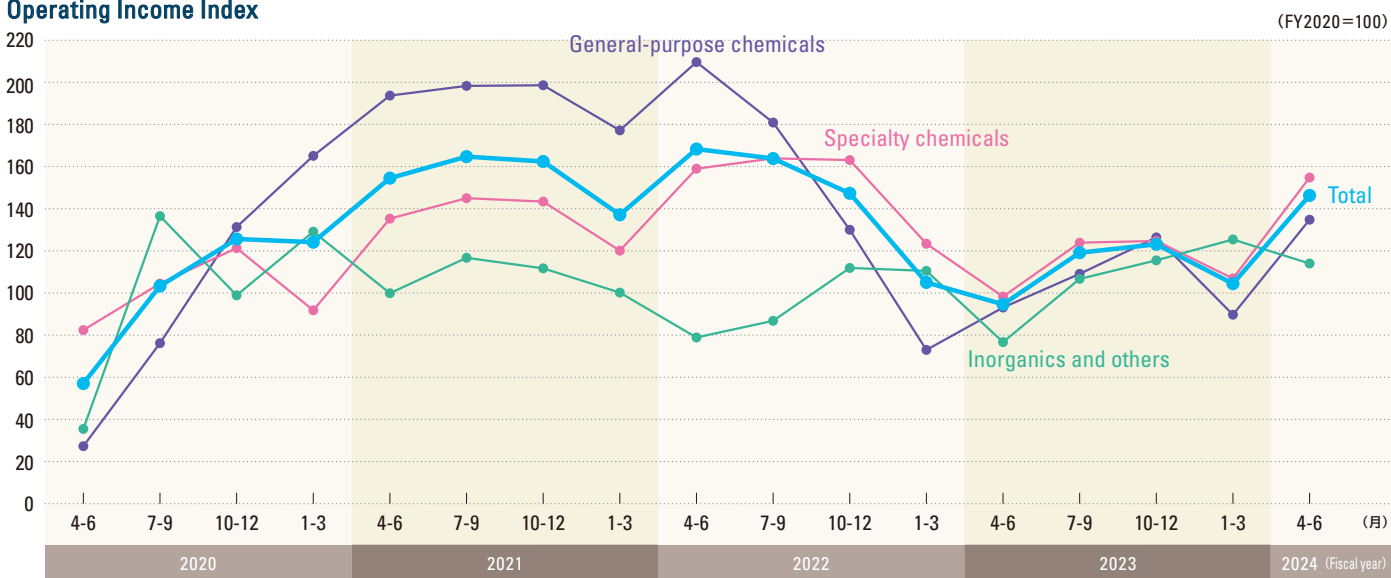
3 Corporate earnings index

You can read the relationship with the consolidated performance of chemical companies by reading together with the Shipping index of Main Chemicals.

Sales Index



Operating Income Index



This index is categorized as "General-purpose chemicals", "Specialty chemicals" and "Inorganics and others" based on summary of quarterly consolidated financial statements of 29 major chemical companies.

JCIA Index >>>

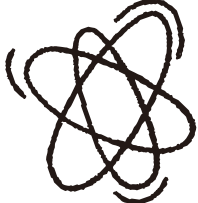
<https://www2.nikkakyo.org/english/data-report/report>



JCIA index is also available on the website

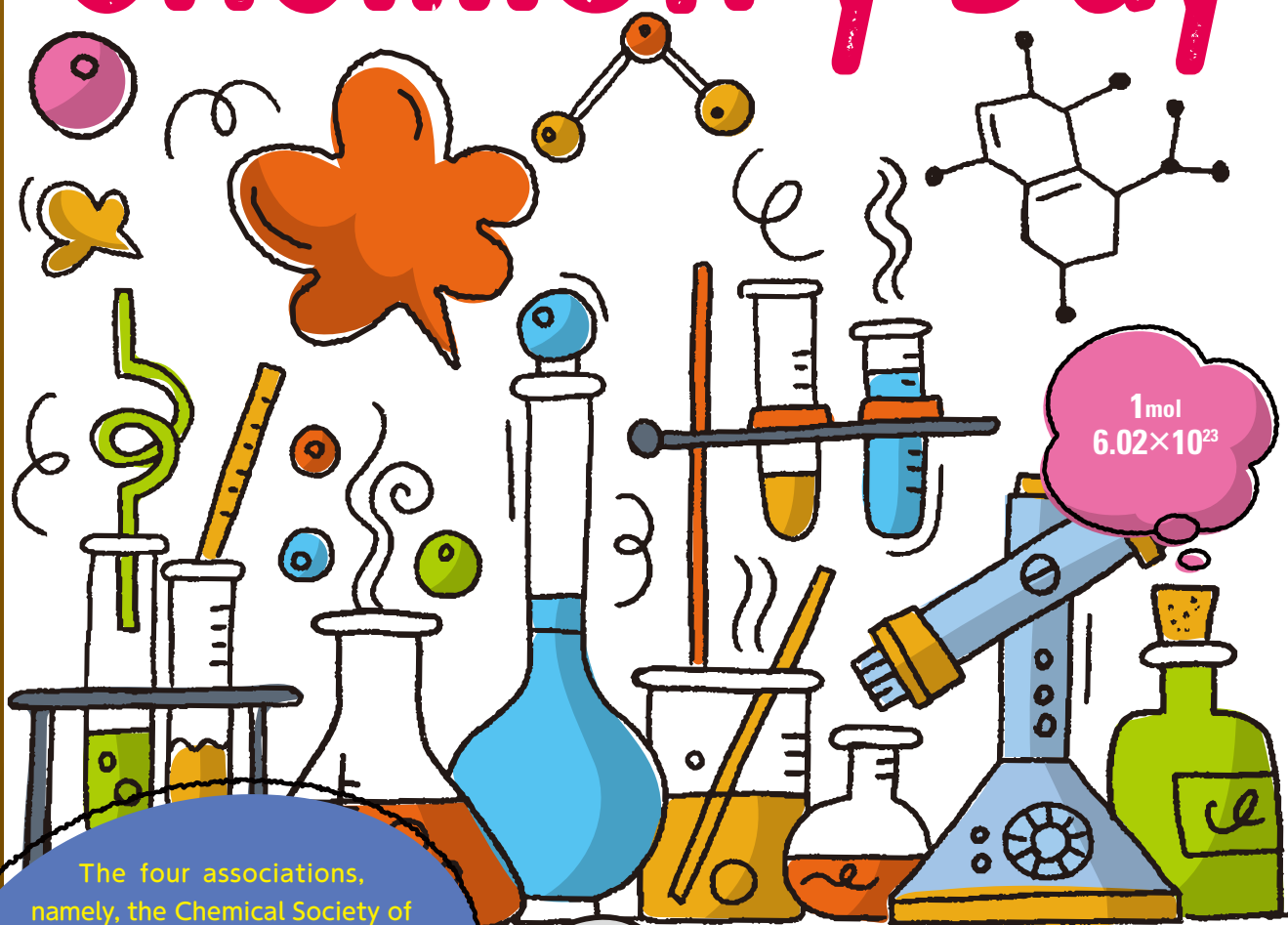



In this report, JCIA is an abbreviated term for the Japan Chemical Industry Association which is our official name.



10/23

Chemistry Day



The four associations, namely, the Chemical Society of Japan (CSJ), the Society of Chemical Engineers, Japan (SCEJ), Japan Association for Chemical Innovation (JACI), and Japan Chemical Industry Association (JCIA) have instituted that October 23rd is the "Chemistry Day", in association with the **Avogadro's Number** (6.02×10^{23}), which is a basic measuring unit in chemistry. Chemistry Day was created as a way to foster interest in chemistry.



Doctor Mole



Nikka-chan

What is
Chemistry
Day?



Japan Chemical Industry Association

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