India's International Trade of Four Specific Commodities in the Recent Past Some Insights

Preface

The study uses trade indicators to analyse merchandise export and import data in a way that should be useful for the purpose of policy. The indicators provide a glimpse of the trade patterns of the world and the performance of India in comparison to various other countries. They have been used in the case of India's exports of **Truck suits**, **Ski Suits and Swim wear & Aldehydes** and imports of **Gaskets and Similar Metal Joints and Spectacles**, **Goggles etc.** to indicate the possible directions policy may take.

The data used in this study has been sourced from the Export Import Data Bank of the DGCI&S, Department of Commerce, and Government of India and from the United Nations Comtrade Database. Introduction notes of each commodities has been sourced from the various sights –viz Wikipedia, Britannica, The Economic Times etc.

Computations are based on data at ITC-HS four-digit level (ITC-HS Code-6211 &2912 for export and 8484 & 9004 for import) and the latest finalized data available on the UN Comtrade Database up to year 2020 and on the DGCI&S Database up to May'2022. So, trends from 2017 to 2020 have been shown when we extract the data from UN Comtrade and from 2018 to 2021 have been shown when we extract the data from DGCIS Data base.

In this report, we will see various analysis and aspects of India's Precious as well as International export trade of Truck suits, Ski Suits and Swim wear & Aldehydes and imports of Gaskets and Similar Metal Joints and Spectacles, Goggles etc.. We will use both the 4 digit Commodity codes.

Trends in India's as well as International Trade i.e. Exports and Imports of above four Commodities are given below in different tables :

- Table 1 : India's top 10 Export destination of Truck Suits etc.. with their shares in percentage.
- Table 2 : World's top 10 Exporters of Truck Suits etc.. with their shares in percentage.
- Table 3 : World's top 10 Importers of Truck Suits etc.. with their shares in percentage.
- Annex- I : Top 3 sources of Truck Suits etc.. of World's top 3 Importers.
- Table 4 : India's top 10 destination of Aldehydes with their shares in percentage.
- Table 5 : World's top 10 Exporters of Aldehydes with their shares in percentage.
- Table 6 : World's top 10 Importers of Aldehydes with their shares in percentage.
- Annex-II : Top 3 sources of Aldehydes s of World's top 3 Importers.
- Table 7 : India's top10 Sources of Gaskets and other similar joints with their shares in percentage.
- Table 8: World's top 10 Importers of Gaskets and other similar joints with their shares in percentage.
- Table 9 : India's top 10 Sources of Spectacles, goggles etc.. with their shares in percentage.
- Table 10 : World's top 10 Importers of Spectacles, Goggles etc with their shares in percentage.

EXPORT

Truck Suits, Sky Suits & Swimwear etc...

A tracksuit is an article of clothing consisting of two parts: trousers and a jacket usually with front zipper. It was originally intended for use in sports, mainly for athletes to wear over competition clothing (such as running shirt and shorts or a swimsuit) and to take off before competition. In modern times, it has become commonly worn in other contexts. The tracksuit was one of the earliest uses of synthetic fibres in sportswear.

A descendant of the tracksuit, the shell suit, which arrived in the late 1980s, was popular with the hip hop and breakdancing scene of the era. They were manufactured from a mix of cellulose triacetate and polyester making them shiny on the outside, with distinctive combinations of colours.

Most tracksuits have a mesh interior which allows the user to wear them without any undergarment such as underwear. This is much like a bathing suit. Many people wear it for physical exercise sessions. A sauna suit is a specialized form of tracksuit made of a waterproof fabric such as coated nylon or PVC that is designed to make the wearer sweat profusely. Sauna suits are primarily used for temporary weight loss.

A ski suit is a suit made to be worn over the rest of the clothes when skiing or snowboarding. A ski suit made for more casual winter wear outdoors may also be called a snowsuit and are often used by children as everyday outerwear in the winter season. Some suits are specifically made for snowboarders but most are used by either skiers or snowboarders regardless of the style.

A ski suit can either be one-piece, in the form of a jumpsuit, or two-piece, in the form of a ski jacket and matching trousers, called silhouettes or ski pants. A ski suit is made from wind- and water-resistant or waterproof fabric, and has a non-removable liner made of nylon, silk, cotton or taffeta. Its main function is to keep a person warm while participating in winter sports, especially Nordic (cross-country) or Alpine (downhill) skiing. It is generally a unisex garment. A ski suit is meant to be worn with a base layer, which consists of long johns and a warm shirt, usually designed for skiing. Ski suits are often made of Gore-Tex or similar materials. They are often in the form of a shell suit, to which the skier adds more or less warm underwear depending on the weather. Pockets are usually made to be waterproof, so items put in them can stay dry.

A swimsuit is an item of clothing designed to be worn by people engaging in a water-based activity or water sports, such as swimming, diving and surfing, or sun-orientated activities, such as sun bathing. Different types may be worn by men, women, and children. A swimsuit can be described by various names, some of which are used only in particular locations, including swimwear, bathing suit, swimming costume, bathing costume, swimming suit, swimmers, swimming togs, bathers, cosier or swimming trunks for men, besides others.

A swimsuit can be worn as an undergarment in sports that require a wetsuit such as water skiing, scuba diving, surfing, and wakeboarding. Swimsuits may also be worn to display the wearer's physical attributes, as in the case of beauty pageants or bodybuilding contests, and glamour photography and magazines like the annual Sports Illustrated Swimsuit Issue featuring models and sports personalities in swimsuits.

These are broadly classified under H.S. Code-6211.

Indi	<u>India's Top 10 destination of Truck Suits, Sky Suits & Swimwear erc. (H.S Code-6211)</u>								
Rank	Countries	2018	2018		9 2)	2021	
		Value	Share	Value	Share	Value	Share	Value	Share
		(million\$)	(%)	(million\$)	(%)	(million\$)	(%)	(million\$)	(%)
1.	USA	343.00	28.85	356.91	30.41	183.60	33.69	328.36	35.91
2.	UK	144.35	12.14	140.12	11.94	61.33	11.26	96.42	10.54
3.	UAE	59.71	5.02	49.61	4.23	19.36	3.55	76.10	8.32
4.	Spain	89.16	7.50	68.16	5.81	30.08	5.52	39.90	4.36
5.	France	55.29	4.65	48.04	4.09	24.29	4.46	34.78	3.80
6.	Germany	54.17	4.56	48.47	4.13	23.40	4.29	32.56	3.56
7.	Australia	27.32	2.30	32.12	2.74	11.34	2.08	28.44	3.11
8.	Afghanistan	28.14	2.37	56.48	4.81	38.88	7.14	28.19	3.08
9.	Denmark	42.61	3.58	39.56	3.37	17.98	3.30	24.87	2.72
10.	Malaysia	22.39	1.88	25.15	2.14	8.32	1.53	17.60	1.92
	Others	322.97	27.16	308.88	26.32	126.34	23.19	207.27	22.66
	Total	1189.10	100	1173.50	100	544.91	100	914.49	100

Table - 1 India's Top 10 destination of Truck Suits, Sky Suits & Swimwear erc. (H.S Code-6211

Source: DGCI&S.

Note : India's Export including re-export

Leading importers of Truck Suits etc.. from India from 2018-2021(Values in million USD) Data label given on the basis of 2021



India's top 5 destinations of Truck Suits, Sky Suits and Swim Wear by percentage India in 2021:



In the year 2021, India has exported Track Suits, Ski Suits And Swimwear, Other Garments worth of US \$ 914.49 million. USA is the largest market for Track Suits, Ski Suits And Swimwear, Other Garments export from India. In 2021, USA imported US \$ 328.36 million worth Track Suits, Ski Suits And Swimwear, Other Garments from India which was accounted 35.91%. Followed by UK and UAE with of 10.54% and 8.32% share of India's total export. The top 10 countries in total shared the share of 77.34% of the Track Suits, Ski Suits And Swimwear, Other Garments export value from India in that year.

	<u>World's Top</u>	<u>10 exporter a</u>	of Truck	<u>Suits, Sky S</u> i	uits & Sw	<mark>/imwear erc.</mark>	(H.S Co	<u>de-6211)</u>	
Rank	Countries	2017		201	8	2019		2020	
		Value	Share	Value	Share	Value	Share	Value	Share
		(million \$)	(%)	(million\$)	(%)	(million\$)	(%)	(million\$)	(%)
1.	China	3886.16	32.65	3989.91	31.63	4923.52	36.00	4293.70	38.67
2.	Viet Nam	646.79	5.43	773.81	6.13	877.27	6.42	829.20	7.47
3.	India	1286.31	10.81	1173.90	9.31	1172.10	8.57	796.72	7.18
4.	France	859.54	7.22	854.46	6.77	855.44	6.26	672.65	6.06
5.	Italy	859.53	7.22	956.81	7.59	950.46	6.95	546.28	4.92
6.	Germany	300.53	2.53	395.72	3.14	403.97	2.95	355.63	3.20
7.	Mexico	221.22	1.86	260.15	2.06	277.25	2.03	303.03	2.73
8.	Turkey	122.56	1.03	115.07	0.91	151.55	1.11	287.95	2.59
9.	Spain	343.98	2.89	321.44	2.55	331.74	2.43	274.38	2.47
10.	USA	235.64	1.98	253.82	2.01	252.84	1.85	227.59	2.05
	Others	3138.86	26.37	3518.89	27.90	3478.69	25.44	2515.90	22.66
	Total	11901.13	100	12614.00	100	13674.84	100	11103.03	100

Table-2

Source: UN Comtrade

World's Leading Exporters of Truck Suits etc.. from 2017 to 2020 (Values in million USD) Data label given on the basis of 2020



Country wise world's top 5 exporter of Truck Suits etc.. by percentage in 2020 :



The total export value in the world for Track suits, ski suits and swimwear is US \$ 11.10 Billion. The largest exporter of Track suits, ski suits and swimwear in the world was China, exported US \$ 4.29 Billion in 2020, accounted 38.67% share of world export. The 2^{nd} and 3^{rd} exported of the commodity were Viet Nam and India in that year. **India** exported US \$ 796.72 Million worth value of Track suits, ski suits and swimwear which was 7.18% share of world export in 2020. In that year, world export of the commodity has decreased by nearly 19% from US \$ 13.67 Billion in 2019 to US \$ 11.10 Billion in 2020.

<u>v</u>	<u>Vorld's top 10 I</u>	<u>mporters of T</u>	<u>ruck Su</u>	<u>its, Sky Suit</u>	s & Swi	<u>mwear erc. (</u>	H.S Coc	<u>le-6211)</u>	
Rank	Countries	2017		2018	8 201			2020	
		Value	Share	Value	Share	Value	Share	Value	Share
		(million \$)	(%)	(million\$)	(%)	(million\$)	(%)	(million\$)	(%)
1.	USA	2580.97	24.58	2660.37	23.99	2720.56	23.80	2338.94	22.87
2.	Japan	1064.64	10.14	1137.38	10.26	1174.10	10.27	1000.33	9.78
3.	France	671.83	6.40	709.34	6.40	729.28	6.38	664.58	6.50
4.	Germany	599.20	5.71	631.29	5.69	658.15	5.76	590.96	5.78
5.	UK	503.67	4.80	561.06	5.06	631.77	5.53	542.75	5.31
6.	Rep of Korea	449.88	4.28	500.57	4.51	562.35	4.92	527.59	5.16
7.	China	241.72	2.30	293.08	2.64	435.09	3.81	496.04	4.85
8.	Netherlands	397.27	3.78	422.01	3.81	431.64	3.78	395.64	3.87
9.	Spain	408.25	3.89	423.97	3.82	433.60	3.79	367.38	3.59
10.	Italy	270.72	2.58	298.49	2.69	314.83	2.75	283.02	2.77
60.	India	7.15	0.07	10.20	0.09	9.73	0.09	10.32	0.10
	Others	3303.91	31.47	3442.40	31.04	3328.56	29.12	3011.37	29.44
	Total	10499.20	100	11090.15	100	11429.64	100	10228.93	100

 Table-3

 World's top 10 Importers of Truck Suits, Sky Suits & Swimwear erc. (H.S Code-6211)

Source : UN Comtrade

Leading Truck Suits etc..importers of world from 2017 to 2020 (Values in million USD) Data label given on the basis of 2020



Country wise world's leading importers of Truck Suits etc.by percentage in 2020



Among the top importing countries, USA imported the highest dollar worth of Track Suits, Ski Suits And Swimwear etc..2021 valued at US \$ 2.34 Billion which was lower than the previous year import into USA. In second place was Japan, imported around US \$ 1 Billion worth of Track Suits, Ski Suits And Swimwear in that year, which was followed by France. The top 10 countries shared was 70.56% share of the world import of the Track Suits, Ski Suits and Swimwear etc. in 2020. In the same year India imported 0.10% of world import.



i) Top 3 Sources of Truck Suits, Sky Suits, Swim Wear_etc... to USA in 2020 by percentage:



USA imports most of its requirements of Truck Suits, Sky Suits, and Swim Wear_etc... from China with 29.75 % share of USA's total import in 2020. Followed by Mexico (14.23%) and Viet Nam (13.64%). India exports 7.60% share of USA's total import in the same year and hold the 4th major source of the commodity to USA Source : UN Comtrade)

ii) Top 3 Sources of Truck Suits, Sky Suits, Swim Wear_etc... to Japan in 2020 by percentage:



47.85% of Truck Suits, Sky Suits, Swim Wear_etc... Imports of Japan comes from China in 2020, followed by Viet Nam (33.34%) and Myanmar (7.22%). In the same year India exported only 1.08% share of Truck Suits, Sky Suits, Swim Wear_etc... to Japan .Source : UN Comtrade)

ii) Top 3 Sources of Truck Suits, Sky Suits, Swim Wear_etc... to France in 2020 by percentage:



France's 3 major source countries of Truck Suits, Sky Suits, Swim Wear_ etc... in 2020 were Tunisia (18.24%), China (15.74%) and Belgium(8%) in 2020. India is also suit as a source of Truck Suits, Sky Suits,

Swim Wear_ etc... to France, exports with 3.60% share of France's total import of the commodity in 2020. (Source: UN Comtrade).

Aldehydes

An aldehyde is an organic compound containing a functional group with the structure R–CH=O. The functional group itself can be referred to as an aldehyde but can also be classified as a formyl group. Aldehydes are common and play important roles in the technology and biological spheres.

Aldehydes have properties that are diverse and that depend on the remainder of the molecule. Smaller aldehydes are more soluble in water, formaldehyde and acetaldehyde completely so. The volatile aldehydes have pungent odours.

Important aldehydes and related compounds. The aldehyde group (or formyl group) is coloured red. From the left: (1) formaldehyde and (2) its trimer 1,3,5-trioxane, (3) acetaldehyde and (4) its enol vinyl alcohol, (5) glucose (pyranose form as α -D-glucopyranose), (6) the flavorant cinnamaldehyde, (7) the visual pigment retinal, and (8) the vitamin pyridoxal.

Aldehydes participate in many reactions. From the industrial perspective, important reactions are (a) condensations, e.g., to prepare plasticizers and polyols, and (b) reduction to produce alcohols, especially "oxo-alcohols". From the biological perspective, the key reactions involve addition of nucleophiles to the formyl carbon in the formation of imines (oxidative deamination) and hemiacetals (structures of aldose sugars).

Because of resonance stabilization of the conjugate base, an α -hydrogen in an aldehyde is weakly acidic, with a p K_a near 17. This acidification is attributed to (i) the electron-withdrawing quality of the formyl centre and (ii) the fact that the conjugate base, an enolate anion, delocalizes its negative charge. The formyl proton itself does not readily undergo deprotonation.

Of all aldehydes, formaldehyde is produced on the largest scale, about 6000000 tons per year. It is mainly used in the production of resins when combined with urea, melamine, and phenol (e.g., Bakelite). It is a precursor to methylene diphenyl diisocyanate ("MDI"), a precursor to polyurethanes.^[6] The second main aldehyde is butyraldehyde, of which about 2500000 tons per year are prepared by hydro formylation. It is the principal precursor to 2-ethylhexanol, which is used as a plasticizer.^[17] Acetaldehyde once was a dominating product, but production levels have declined to less than 1000000 tons per year because it mainly served as a precursor to acetic acid, which is now prepared by carboxylation of methanol. Many other aldehydes find commercial applications, often as precursors to alcohols, the so-called oxo alcohols, which are used in detergents. Some aldehydes are produced only on a small scale (less than 1000 tons per year) and are used as ingredients in flavours and perfumes such as Chanel No. 5. These include cinnamaldehyde and its derivatives, citral, and lilial.

The word aldehyde was coined by Justus von Liebig as a contraction of the Latin alcohol dehydrogenatus (dehydrogenated alcohol). In the past, aldehydes were sometimes named after the corresponding alcohols, for example, vinous aldehyde for acetaldehyde. (Vinous is from Latin *vinum* "wine", the traditional source of ethanol, cognate with vinyl.)

The term formyl group is derived from the Latin word *formica* "ant". This word can be recognized in the simplest aldehyde, formaldehyde, and in the simplest carboxylic acid, formic acid.

These are broadly classified under H.S. Code-2912.

Rank	Countries	2018	3	2019		2020)	2021	
		Value	Share	Value	Share	Value	Share	Value	Share
		(million\$)	(%)	(million\$)	(%)	(million\$)	(%)	(million\$)	(%)
1.	CHINA	41.34	30.40	44.26	27.50	24.43	25.33	36.30	21.30
2.	USA	16.34	12.02	20.21	12.56	12.89	13.37	27.59	16.19
3.	Netherland	2.25	1.65	3.96	2.46	3.19	3.31	14.08	8.26
4.	SPAIN	10.60	7.79	9.98	6.20	7.89	8.18	13.00	7.63
5.	Singapore	5.46	4.02	6.13	3.81	4.70	4.87	8.49	4.98
6.	GERMANY	6.28	4.62	14.36	8.92	4.37	4.53	7.94	4.66
7.	FRANCE	3.24	2.38	6.94	4.31	4.28	4.44	6.97	4.09
8.	UK	6.50	4.78	6.72	4.17	5.39	5.59	5.04	2.96
9.	JAPAN	2.15	1.58	4.18	2.60	1.47	1.52	4.46	2.62
10.	BRAZIL	3.08	2.26	3.42	2.12	2.56	2.65	4.44	2.61
	Others	4.07	2.99	4.16	2.58	2.62	2.72	4.28	2.51
	Total	135.99	100	160.96	100	96.43	100	170.43	100

 Table - 4

 India's Top 10 destination of Aldehydes (HS Code –2912)

Source: DGCI&S

Note : India's Export including re-export

India's major destination Aldehydes from 2018-2021(Values in M USD) Data label given on the basis of 2021



India's top 5 destinations of Aldehydes by percentage in 2021:



In the year 2021, India has exported of Aldehydes worth of US \$ 170.43 million, which has increased nearly 43.42% compare to the year 2020. China is the largest market for the Commodity export from

India. In 2021, China imported US \$ 36.30 million worth Aldehydes from India, which was accounted 21.30% of world import. Followed by USA and Netherland with the Aldehydes shipment value being US \$ 27.59 Million and US \$ 14.08 million. The top 10 countries in total shared the share of 97.50% of the Aldehydes export value from India.

	W	orld's Top	<u>10 expor</u>	ters of Ald	ehydes (l	HS Code –29	<u>(12)</u>		
Rank	Countries	201	2017		8	2019		2020	
		Value	Share	Value	Share	Value	Share	Value	Share
		(million\$)	(%)	(million\$)	(%)	(million\$)	(%)	(million\$)	(%)
1.	China	378.82	20.96	453.75	22.00	474.09	23.00	501.52	24.71
2.	Germany	297.14	16.44	306.39	14.86	317.72	15.42	292.48	14.41
3.	USA	236.83	13.11	280.29	13.59	252.72	12.26	215.50	10.62
4.	India	106.61	5.90	135.61	6.58	160.87	7.81	150.06	7.39
5.	Japan	93.79	5.19	105.08	5.10	112.01	5.43	117.06	5.77
6.	UK	90.90	5.03	103.22	5.01	108.56	5.27	112.08	5.52
7.	Spain	71.75	3.97	79.79	3.87	79.16	3.84	83.91	4.13
8.	Switzerland	88.42	4.89	83.98	4.07	84.44	4.10	80.51	3.97
9.	Netherlands	94.17	5.21	72.47	3.51	60.05	2.91	75.84	3.74
10.	France	51.75	2.86	54.56	2.65	59.56	2.89	61.67	3.04
	Others	296.81	16.43	386.99	18.77	351.66	17.06	338.90	16.70
	Total	1806.99	100	2062.14	100	2060.84	100	2029.54	100

Table - 5	
Warld's Tan 10 anartars of Aldahydas (US Cada	2012)

Source: UN Comtrade

Top world exporters of Aldehydes from 2017 to 2020 (Values in M USD) Data label given on the basis of 2020



Export trends in world's leading Aldehydes exporters by percentage in 2020:



In 2020 total global export of Aldehydes was US \$2.02 Billion, which was constant from 2018. In 2020 China is the top country by Aldehydes export in the world, exported US \$ 501.52 million that accounts for 24.71% of the world export. Germany and USA constituted the 2nd and 3rd largest exporter of Aldehydes in the world, comprising 14.41% and 10.62% of world export. **India** also a leading exporting country of the commodity, holds 4th rank in the world with 7.39% share of total global export value of Aldehydes in 2020

	•••	oria's Top I) mpoi	icis ul Alu	cilyucs (IIS Coue -2	712)		
Rank	Countries	2017		201	8	201	9	2020	
		Value	Share	Value	Share	Value	Share	Value	Share
		(million \$)	(%)	(million\$)	(%)	(million\$)	(%)	(million\$)	(%)
1.	USA	287.36	13.76	320.26	13.38	320.67	13.55	313.47	13.74
2.	India	166.18	7.96	204.84	8.56	235.79	9.96	219.85	9.64
3.	Germany	191.94	9.19	232.65	9.72	204.36	8.63	208.31	9.13
4.	China	143.06	6.85	150.96	6.31	167.42	7.07	155.41	6.81
5.	France	117.79	5.64	144.24	6.03	129.34	5.46	132.54	5.81
6.	Switzerland	99.66	4.77	108.26	4.52	109.18	4.61	117.55	5.15
7.	Spain	74.81	3.58	85.56	3.57	95.23	4.02	99.66	4.37
8.	Singapore	83.33	3.99	87.00	3.63	87.65	3.70	90.08	3.95
9.	UK	72.98	3.50	94.01	3.93	92.24	3.90	88.51	3.88
10.	Mexico	61.14	2.93	64.48	2.69	67.14	2.84	69.13	3.03
	Others	789.48	37.82	901.22	37.65	857.85	36.24	786.61	34.48
	Total	2087.74	100	2393.47	100	2366.86	100	2281.12	100

Table - 6
World's Top 10 Importers of Aldehydes (HS Code –2912)

Source: UNComtrade

Top world importers of Aldehydes from 2017 to 2020 (Values in million USD) Data label given on the basis of 2020



Country wise leading global Importer of Aldehydes by percentage in 2020



The USA imported around US \$ 313.47 million worth of Aldehydes in 2020, making it the leading importer of Aldehydes worldwide that year. **India** followed in second place, importing around US \$ 219.85 million worth of the commodity. It was followed by Germany, imported US \$ 208.31Million of Aldehydes in the same year. The top 10 importing countries imported 65.52% share of world import of Aldehydes in that year. In the year 2020 the global import of Aldehydes has decreased by 3.63% compared to that in the year 2019.



USA, being the largest importer of Aldehydes, imports from China, **More** than 34.48% of total Aldehydes imports of USA, followed by Japan (11.61%) and Germany (11.11%). India has exported 6.75% of Aldehydes to USA in 2020. **(Source: UN Comtrade)**





China is the number one source of Aldehydes to **India**, India imports 48.74% Aldehydes from China, 7.12% from Japan and 6.85% from Germany (**Source: UN Comtrade**)

iii) Top 3 Sources of Aldehydes to Germany in 2020 by percentage:



With 24.67% share of Germany's total import of Aldehydes, China became the largest source of it to Germany in 2020. USA(13.19%) and Netherlands(11.63%) were other major sources of Aldehydes to Germany in that year. India's share was 4.20% share of Germany's total import in 2020. (Source : UN Comtrade)

IMPORT

Gaskets and Similar joints of Metal

A **gasket** is a mechanical seal which fills the space between two or more mating surfaces, generally to prevent leakage from or into the joined objects while under compression. It is a deformable material that is used to create a static seal and maintain that seal under various operating conditions in a mechanical assembly.

Gaskets allow for "less-than-perfect" mating surfaces on machine parts where they can fill irregularities. Gaskets are commonly produced by cutting from sheet materials. Given the potential cost and safety implications of faulty or leaking gaskets, it is critical that the correct gasket material is selected to fit the needs of the application.

Gaskets for specific applications, such as high pressure steam systems, may contain asbestos. However, due to health hazards associated with asbestos exposure, non-asbestos gasket materials are used when practical.

It is usually desirable that the gasket be made from a material that is to some degree yielding such that it is able to deform and tightly fill the space it is designed for, including any slight irregularities. Some types of gaskets require a sealant be applied directly to the gasket surface to function properly.

Some (piping) gaskets are made entirely of metal and rely on a seating surface to accomplish the seal; the metal's own spring characteristics are utilized (up to but not passing σ_y , the material's yield strength). This is typical of some "ring joints" (RTJ) or some other metal gasket systems. These joints are known as R-con and E-con compressive type joints.

Gaskets are normally made from a flat material, a sheet such as paper, rubber, silicone, metal, cork, felt, neoprene, nitrile rubber, fiberglass, polytetrafluoroethylene (otherwise known as PTFE or Teflon) or a plastic polymer (such as polychlorotrifluoroethylene).

One of the more desirable properties of an effective gasket in industrial applications for compressed fibre gasket material is the ability to withstand high compressive loads. Most industrial gasket applications involve bolts exerting compression well into the 14 MPa (2000 psi) range or higher. Generally speaking, there are several truisms that allow for better gasket performance. One of the more tried and tested is: "The more compressive load exerted on the gasket, the longer it will last".

A gasket is a crucial factor used in the welding industry. It is used to create a seal between two or more surfaces which prevents leakage of air and/or liquid. However, a gasket can prove useful in maintaining a strong seal when the surfaces are weakened or under pressure. Automotive engines normally have a gasket between the head of the cylinder and the centre of the cylinder for ignition. Founded as a head gasket which prevents leakages of gas, gasoline and coolant. A gasket is an important part used in the welding industry. It is used to establish a bond between two or more materials that stops the air and/or liquid from leaking. The two surfaces may be fused for certain development procedures, without the need for a gasket. Whether the surfaces are weakened or under pressure, though, a gasket would be indispensable in creating a close seal. If that happens, neither the fuel oil nor refrigerant can function properly, allowing the fuel and its parts to fail.

In several manufacturing processes, a gasket is a key factor because it can be produced in various requirements. Gasket content is picked for installation depending on environmental properties such as its chemical tolerance, temperatures (or variations in temperature), stresses, liquids, gases, and often electromagnetic or electrical powers. Gaskets are very typical parts and can be used in vehicles, ships, aircraft, vessels, electrical devices, pumps, and more. **These are broadly classified under H. S. Code 8484.**

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Rank	Countries	2018		2019)	2020		2021	
		Value	Share	Value	Share	Value	Share	Value	Share
		(million \$)	(%)	(million\$)	(%)	(million\$)	(%)	(million\$)	(%)
1.	Zambia	31.20	26.74	25.57	21.82	13.03	20.57	31.01	21.06
2.	Uruguay	8.58	7.35	13.68	11.67	7.15	11.29	20.81	14.14
3.	Venezuela	9.90	8.49	11.72	10.00	5.67	8.95	14.99	10.18
4.	Unspecified	8.23	7.05	8.74	7.46	6.12	9.66	12.38	8.41
5.	Ukraine	7.78	6.67	8.20	7.00	4.69	7.40	12.30	8.35
6.	Viet Nam	15.13	12.97	10.48	8.94	5.57	8.79	12.25	8.32
7.	U S A	7.78	6.67	6.90	5.89	4.14	6.54	9.12	6.19
8.	UK	5.47	4.69	5.16	4.40	3.36	5.30	7.96	5.40
9.	Thailand	1.88	1.61	2.63	2.24	1.49	2.35	3.70	2.51
10.	Turkey	2.72	2.33	2.34	2.00	1.00	1.58	2.73	1.85
	Others	17.98	15.41	21.77	18.58	11.13	17.57	19.97	13.56
	Total	116.66	100	117.20	100	63.35	100	147.22	100

India's Top 10 Sources of Gaskets and Similar metal Joints (HS Code: 8484)

Source: DGCI&S

Note : India's Import including re-import

Country wise import of Gaskets and Similar Joints etc... to India in 2021 (USD Million)



12

India's import of Gaskets and Other similar joints in 2021 stood at US \$ 147.22 Million and US \$ 116.66 Million in 2018, which shows a positive growth of 21.% from the 2018 of India's import value of Gaskets and similar joints. Major three source countries of the commodity group to India in 2021 are Zambia(US \$ 31.01 Million), Uruguay (US \$ 20.81 Million), Venezuela (US \$ 14.99 Million). These 3 countries in total sold US \$ 66.81 Million value of Gaskets and similar joints to India which rounds up to 45.38% of world import.

	World Top 1	<u>0 Importer of</u>	Gasket	s and Simila	<u>r metal</u>	<u>Joints (HS C</u>	<u>Code : 8</u> 4	<u>484)</u>	
Ran	Countries	2017		2018		2019		2020	
k		Value	Share	Value	Share	Value	Share	Value	Share
		(million \$)	(%)	(million\$)	(%)	(million\$)	(%)	(million\$)	(%)
1.	China	568.86	7.81	612.81	7.87	597.12	7.84	613.78	9.11
2.	USA	633.38	8.70	674.85	8.67	655.79	8.61	548.97	8.15
3.	Germany	574.39	7.89	604.46	7.76	553.83	7.27	464.77	6.90
4.	France	239.47	3.29	255.44	3.28	361.97	4.75	341.96	5.07
5.	UK	308.00	4.23	356.51	4.58	360.44	4.73	268.08	3.98
6.	Mexico	293.78	4.04	296.22	3.80	272.14	3.57	235.29	3.49
7.	Canada	236.05	3.24	249.58	3.21	252.51	3.31	208.95	3.10
8.	UAE	172.01	2.36	161.26	2.07	177.74	2.33	180.15	2.67
9.	Italy	207.35	2.85	222.10	2.85	190.12	2.50	178.54	2.65
10.	Japan	174.37	2.40	215.03	2.76	183.34	2.41	162.99	2.42
23.	India	102.73	1.41	116.91	1.50	117.12	1.54	101.21	1.50
	Others	3769.40	51.78	4021.63	51.65	3897.04	51.15	3433.49	50.96
	Total	7279.78	100	7786.79	100	7619.14	100	6738.19	100

Table – 8
World Top 10 Importer of Gaskets and Similar metal Joints (HS Code : 8484)

Source :UNComtrade

Year wise trends of Global import of Gaskets and other Similar Joints etc from 2017 to 2020 : (Values in USD Billion)



14

Global Imports of Gaskets and similar joints, the top five importers of Gaskets and similar joints in 2020 were China (US \$613.78 M), USA (US \$548.97 M), Germany(US \$464.77 M), France(US \$341.96 M), and U K (US \$268.08 M), accounted for 9.11%, 8.15%, 6.90%, 5.07% and 3.98% respectively of world import value of Gaskets and similar joints. The import value of Gaskets and similar joints into India amounted to US \$101.21 million in the year 2020 and ranked in 23rd position in the world with the share of 1.50% of total Global import. This was decrease from the previous year.

2. <u>Spectacles, Goggles etc</u>

Glasses, also known as **eyeglasses** or **spectacles**, are vision eyewear, with lenses (clear or tinted) mounted in a frame that holds them in front of a person's eyes, typically utilizing a bridge over the nose and hinged arms (known as temples or temple pieces) that rest over the ears.

Glasses are typically used for vision correction, such as with reading glasses and glasses used for nearsightedness; however, without the specialized lenses, they are sometimes used for cosmetic purposes. Safety glasses provide eye protection against flying debris for construction workers or lab technicians; these glasses may have protection for the sides of the eyes as well as in the lenses. Some types of safety glasses are used to protect against visible and near-visible light or radiation. Glasses are worn for eye protection in some sports, such as squash.

Glasses wearers may use a strap to prevent the glasses from falling off. Wearers of glasses that are used only part of the time may have the glasses attached to a cord that goes around their neck, to prevent the loss of the glasses and breaking. The loss of glasses would be detrimental to those working in these conditions.

Sunglasses allow for better vision in bright daylight, and may protect one's eyes against damage from excessive levels of ultraviolet light. Typical sunglasses lenses are tinted for protection against bright light or polarized to remove glare; photochromic glasses are blacked out or lightly tinted in dark or indoor conditions, but turn into sunglasses when they come in contact with ultraviolet light. Most over-the-counter sunglasses do not have corrective power in the lenses; however, special prescription sunglasses can be made. People with conditions that have photophobia as a primary symptom (like certain migraine disorders or Irlen syndrome) often wear sunglasses or precision tinted glasses, even indoors and at night.

Specialized glasses may be used for viewing specific visual information, for example 3D glasses for 3D films (stereoscopy). Sometimes glasses are worn purely for fashion or aesthetic purposes.

Corrective lenses are used to correct refractive errors by bending the light entering the eye in order to alleviate the effects of conditions such as nearsightedness (myopia), farsightedness (hypermetropia) or astigmatism. The ability of one's eyes to accommodate their focus to near and distant focus alters over time. A common condition in people over forty years old is presbyopia, which is caused by the eye's crystalline lens losing elasticity, progressively reducing the ability of the lens to accommodate

Corrective lenses bring the image back into focus on the retina. They are made to conform to the prescription of an ophthalmologist or optometrist. A lens meter can be used to verify the specifications of an existing pair of glasses. Corrective eyeglasses can significantly improve the life quality of the wearer. Not only do they enhance the wearer's visual experience, but can also reduce problems that result from eye strain, such as headaches or squinting.

Sunglasses provide more comfort and protection against bright light and often against ultraviolet (UV) light. To properly protect the eyes from the dangers of UV light, sunglasses should have UV-400 blocker to provide good coverage against the entire light spectrum that poses a danger.

Light polarization is an added feature that can be applied to sunglass lenses. Polarization filters are positioned to remove horizontally polarized rays of light, which eliminates glare from horizontal surfaces. Polarized sunglasses may present some difficulties for pilots since reflections from water and other

structures often used to gauge altitude may be removed. Liquid-crystal displays emit polarized light, making them sometimes difficult to view with polarized sunglasses. Sunglasses may be worn for aesthetic purposes, or simply to hide the eves. Examples of sunglasses that were popular for these reasons include tea shades and mirror shades.

Sunglasses may also have corrective lenses, which requires a prescription. Clip-on sunglasses or sunglass clips can be attached to another pair of glasses. Some wrap-around sunglasses are large enough to be worn over another pair of glasses. Otherwise, many people opt to wear contact lenses to correct their vision so that standard sunglasses can be used.

Rank Countries 2018 2019 2020 Value Value Share Share Value Share Value (million \$) (%) (million\$) (%) (million\$) (%) (million\$) China 55.68 65.42 44.67 60.45 44.21 79.77 1. Italy 14.23 20.03 2. 16.72 14.80 4.78 8.63 3.99 3. Hong Kong 3.65 4.29 3.80 5.14 2.21

3.75

2.62

0.73

0.36

1.05

1.21

0.32

3.52

100

These are broadly classified under H. S. Code 9004.

3.19

2.23

0.62

0.31

0.89

1.03

0.27

3.00

85.11

	Table - 9
India's Top 10 Source Countries	of Spectacles, Goggles etc. (HS Code : 9004)

3.31

2.26

0.92

0.38

0.75

0.70

0.48

1.83

73.90

4.48

3.06

1.24

0.51

1.01

0.95

0.65

2.48

100

1.12

0.71

0.36

0.27

0.21

0.62

0.26

0.66

55.42 100

2.02

1.28

0.65

0.49

0.38

1.12

0.47

1.19

2021

41.95

5.91

2.67

2.14

1.83

0.86

0.64

0.62

0.56

0.38

1.43

59.01 100

Share

(%)

71.09

10.02

4.52

3.63

3.10

1.46

1.08

1.05

0.95

0.64

2.42

Source: DGCI&S

Taiwan

Singapore

Germany

Malaysia

France

Others

Total

Switzerland

U S A

Note : India's Import including Re-import

Country wise import of Spectacles, Goggles etc.. to India in 2021 (USD Million)

15

4.

5.

6.

7.

8.

9.

10.



The value of imports of Spectacles, Goggles etc.to India totalled US \$ 59.01 million in 2021. Sales of Spectacles, Goggles etc.. to India increased by more than 6% in value terms compared to 2020. Major five source countries of Spectacles, Goggles etc.. to India in 2021 are China (US \$ 41.95 Million), Italy (US \$ 5.91 Million), Hong Kong (US \$ 2.67 Million), Taiwan (US \$ 2.14 Million) and USA(US \$ 1.83 Million). These 5 countries in total imported Spectacles, Goggles etc.. to India which rounds up to 92.36%.

<u>World Top 10 Importer of Spectacles, Goggles etc. (HS Code : 9004)</u>										
Rank	Countries	2017		2018		2019		2020		
		Value	Share	Value	Share	Value	Share	Value	Share	
		(million\$)	(%)	(million\$)	(%)	(million\$)	(%)	(million\$)	(%)	
1.	USA	2407.88	23.65	2563.91	24.15	2627.71	24.58	2293.99	23.55	
2.	UK	507.69	4.99	491.29	4.63	437.97	4.10	911.69	9.36	
3.	Hong Kong	950.74	9.34	1024.66	9.65	986.83	9.23	697.76	7.16	
4.	Germany	461.34	4.53	490.92	4.62	515.44	4.82	557.10	5.72	
5.	Italy	551.26	5.41	591.44	5.57	631.21	5.90	503.58	5.17	
6.	France	561.28	5.51	572.42	5.39	581.78	5.44	499.72	5.13	
7.	Australia	326.65	3.21	353.00	3.33	344.25	3.22	390.56	4.01	
8.	China	312.33	3.07	409.54	3.86	404.23	3.78	341.63	3.51	
9.	Canada	371.95	3.65	359.06	3.38	359.23	3.36	282.00	2.90	
10.	Spain	358.45	3.52	318.70	3.00	361.67	3.38	275.66	2.83	
24.	India	77.61	0.76	85.34	0.80	74.08	0.69	69.45	0.71	
	Others	3371.73	33.12	3441.22	32.41	3440.37	32.18	2986.93	30.66	
	Total	10181.29	100	10616.15	100	10690.70	100	9740.62	100	

 Table - 10

 Vorld Top 10 Importer of Spectacles Goggles etc. (HS Code : 9004)

Source :UNComtrade

Year wise trends of \Global import of Spectacles, Goggles etc.. etc from 2017 to 2020 : (Values in USD Billion)



The imports of the three major importers of Spectacles, Goggles etc., namely USA, U K and Hong Kong, represented more than 40% of total imports in 2020. In value terms, USA (US 2.29 B), U K (US 911.69 M) and Hong Kong (US 697.76 B) constituted the countries with the highest levels of imports in 2020, together accounting for 40% share of global imports of Spectacles, Goggles etc.. **India** experienced the highest growth rate of the value of imports, among the main importing countries and ranked in 24th position in the world with 0.71% share of Global import of Spectacles, Goggles etc.. in 2020.