

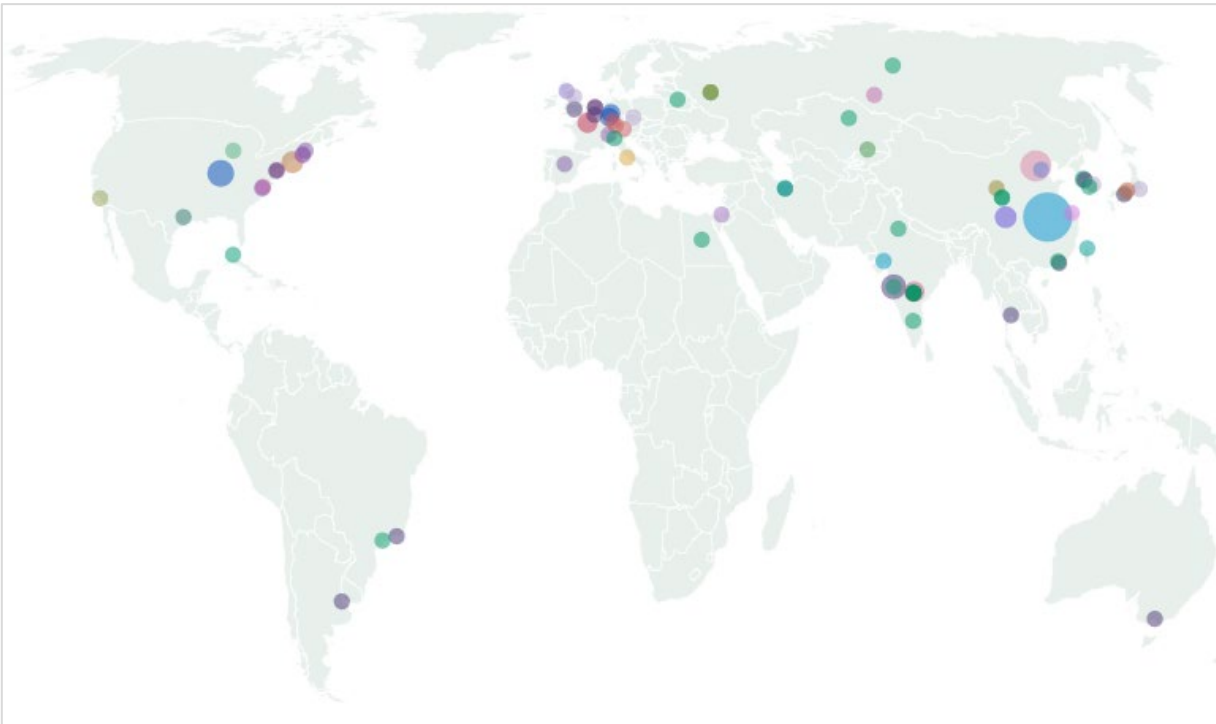
COVID-19 Vaccine Inputs

Analysis on Tariffs

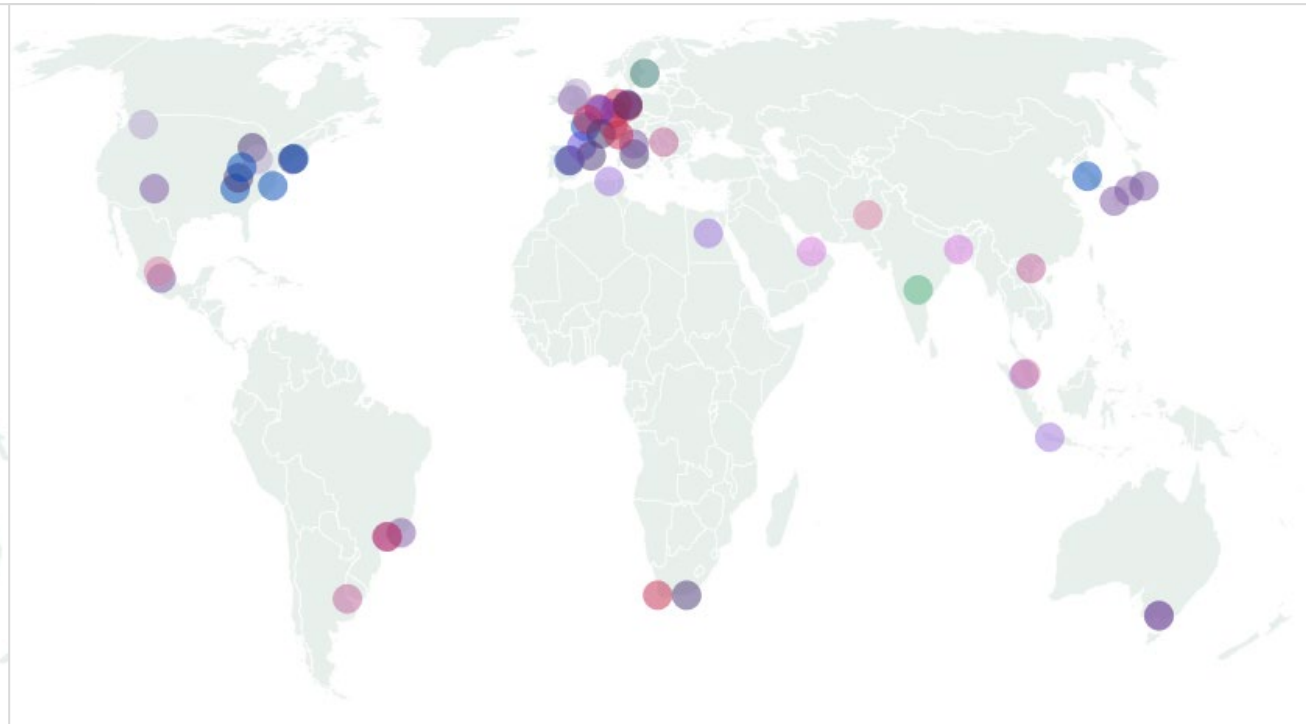
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Economic Research and Statistics Division

COVID-19 vaccine production sites (in operation & planned)

Map of vaccine production sites



Map of fill/finish sites



Source: Airfinity

Joint Indicative List of Critical COVID-19 Vaccine Inputs

Category	Sub-Category	No. products codes	Examples
1. Vaccine manufacturing	1.1 Active ingredients	3	mRNA, viral vector
	1.2 Inactive ingredients	26	PEG2000-DMG, tromethamine
	1.3 Other ingredients	11	Enzymes, gelatine, neomycin
	1.4 Consumables	18	Bioreactor bags, filters, reagent packs
	1.5 Equipment	9	Bioreactor, sterilisers, chromatography systems
	1.6 Packaging	3	Vials, stoppers, crimp seals
2. Vaccine storage and distribution		5	Freezers, dry ice
3. Vaccine administration		8	Needles, syringes

Note: A living list (constantly updated) compiled with information from multiple sources/contributors, including Asian Development Bank (ADB), Chad Bown & Chris Rogers, Coalition for Epidemic Preparedness Innovations (CEPI), DHL, OECD, Covid-19 vaccine manufacturers, WCO, and WTO. It includes inputs for different types of COVID-19 vaccines. The list is indicative only and subject to further improvement; it does not have any legal status. Status as of 7 July 2021.

Background technical information

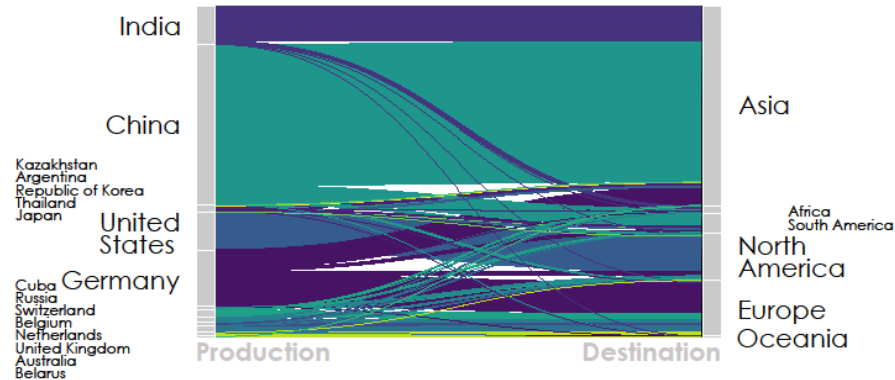
- Based on joint indicative list of HS 6-digit subheading codes for vaccine production
- Twenty-seven top manufacturing companies based on July 2021 Airfinity report
- World Tariff Profiles 2021 applied MFN tariff dataset including calculable AVEs for non-*ad valorem* tariffs. Reference year is 2020 or 2019
- TDM 2020 imports
- Statistics were calculated based on HS subheading tariff averages and HS subheading total imports

Profile of applied MFN tariff subheadings used in the tariff estimates

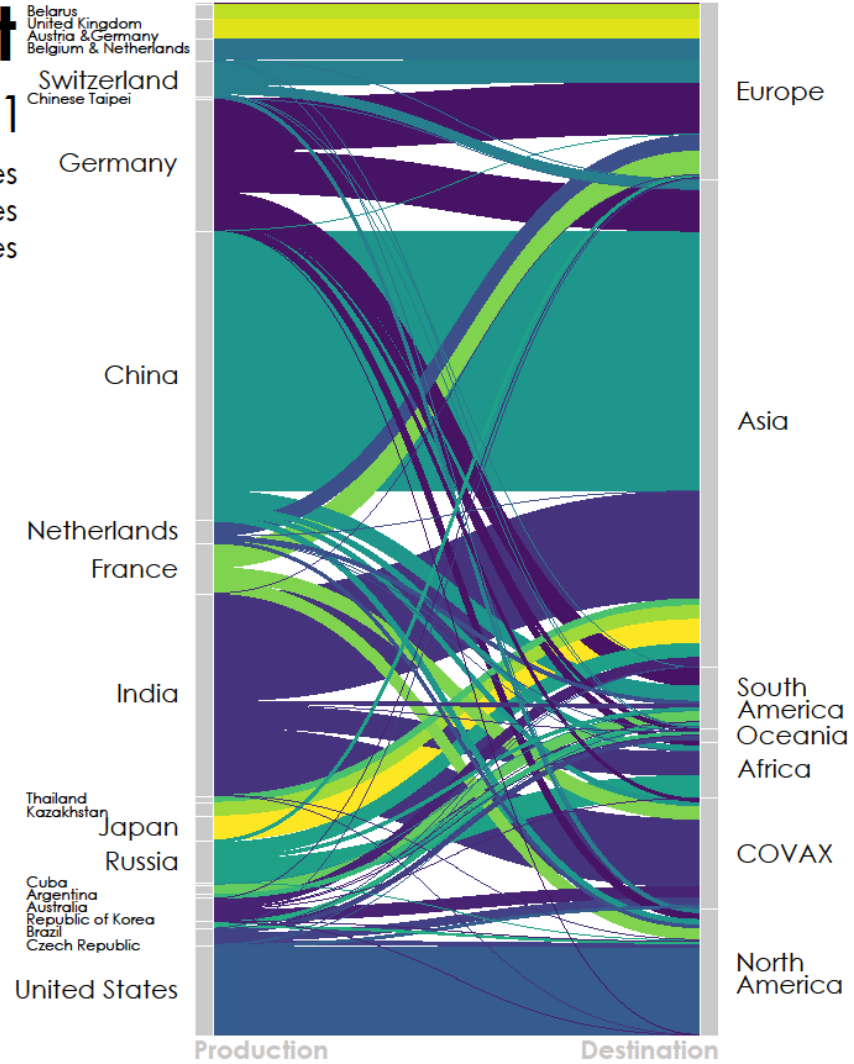
Description of national tariff lines in the subheading	Subheadings in the dataset	
	Number	Share (%)
No national tariff line breakdown	551	52.7
With breakdown but rates are uniform	247	23.6
Different rates in the tariff line breakdowns		
5 percentage points or less	114	10.9
5 to 10 percentage points	56	5.4
10 to 20 percentage point	60	5.7
more than 20 percentage points	17	1.6

COVID-19 Vaccine Production Estimates

Current
Jul 2021
3.8 billion doses
28 facilities
17 economies



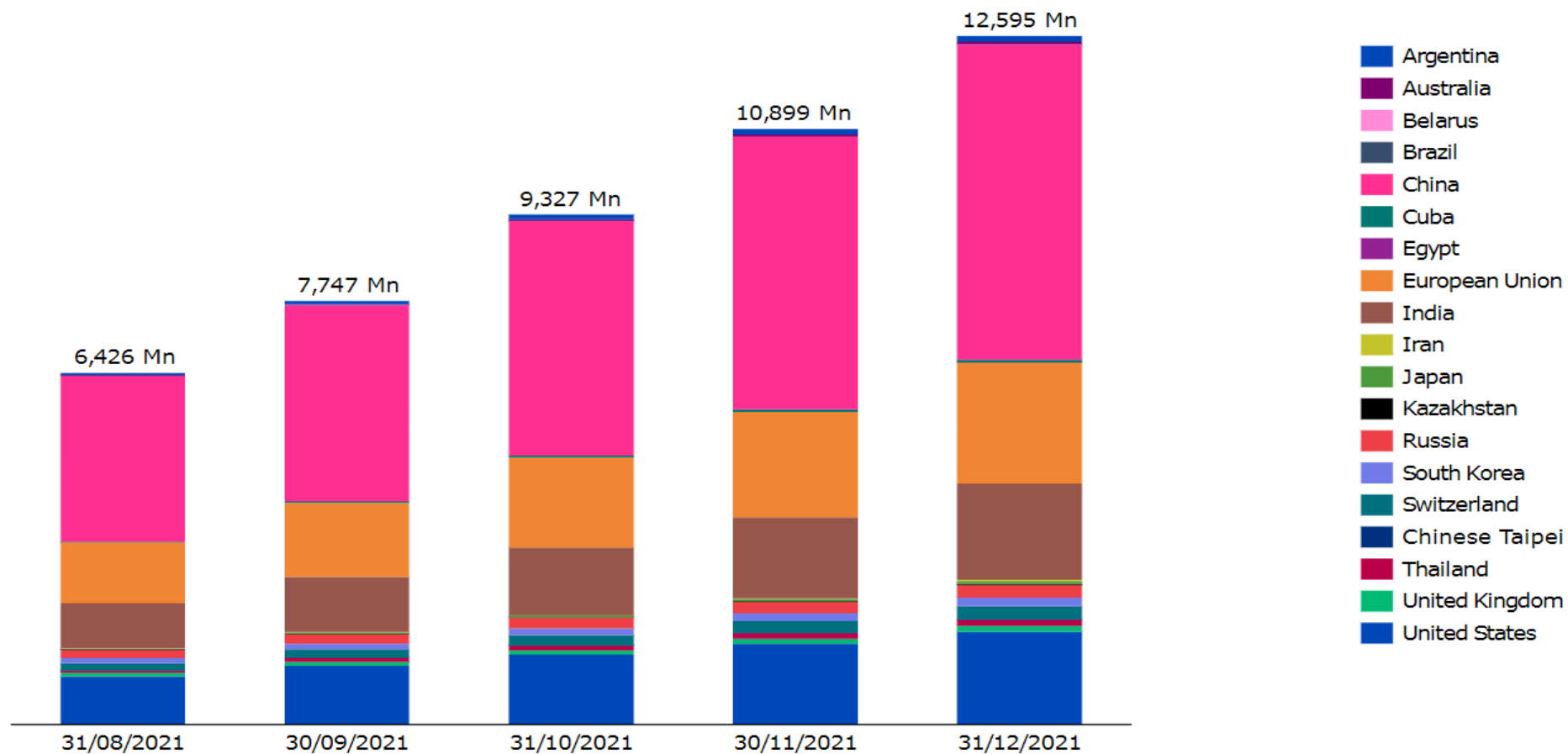
Target
Dec 2021
10+ billion doses
60+ facilities
27 economies



Sources: Airfinity; and WTO staff calculations.
Note: Not all production sites were included in the visualisation.

China, EU, India, and USA set to be biggest vaccine producers

Vaccine production forecasts by country



Forecasted on 06/10/2021

Identifying Critical Products and Possible Tariff Choke Points among the Thirteen Product Groups Used in Vaccine Manufacturing

Level	Weighted MFN (%)	Share in All Imported Vaccine Inputs (%)	Colour/shade
Non-critical	Less than 5%	No limit	
1	5% - 15%	Less than 10%	
2		10% or more	
3	Greater than 15%	Less than 10%	
4		10% or more	

Tariffs below 5% are considered “nuisance” or “insignificant”.

Average applied MFN tariffs
for all product groups used as inputs
in manufacturing COVID-19 vaccines
and number of possible choke point
product groups for the 27
manufacturing economies

Manufacturing Economy	Weighted MFN (%)	No. of possible choke point product groups
Argentina	9.6	13
Australia	3.0	6
Austria	5.1	5
Belarus	5.2	8
Belgium	2.8	4
Brazil	6.8	12
China	4.5	11
Cuba	10.3	12
Czech Republic	4.8	5
Egypt	4.1	7
France	4.6	5
Germany	4.3	5
India	8.5	13
Iran	11.9	13
Israel	2.8	5
Italy	5.9	5
Japan	2.1	0
Kazakhstan	8.9	7
Korea, Republic of	6.2	10
Netherlands	4.9	5
Russian Federation	3.2	8
Spain	5.7	5
Switzerland	1.5	1
Chinese Taipei	3.5	8
Thailand	6.4	9
United Kingdom	4.0	5
United States of America	2.0	0

Average applied MFN tariffs
for all product groups used as
inputs in manufacturing COVID-
19 vaccines and number of
possible choke point product
groups for the 27 manufacturing
economies
(Sorted by increasing tariff)

Manufacturing Economy	Weighted MFN (%)	No. of possible choke point product groups
Switzerland	1.5	1
United States of America	2.0	0
Japan	2.1	0
Belgium	2.8	4
Israel	2.8	5
Australia	3.0	6
Russian Federation	3.2	8
Chinese Taipei	3.5	8
United Kingdom	4.0	5
Egypt	4.1	7
Germany	4.3	5
China	4.5	11
France	4.6	5
Czech Republic	4.8	5
Netherlands	4.9	5
Austria	5.1	5
Belarus	5.2	8
Spain	5.7	5
Italy	5.9	5
Korea, Republic of	6.2	10
Thailand	6.4	9
Brazil	6.8	12
India	8.5	13
Kazakhstan	8.9	7
Argentina	9.6	13
Cuba	10.3	12
Iran	11.9	13

Number of manufacturing economies by choke point ranges

Number of choke points	Manufacturing economies	
	Number	Percentage
None	2	7.4%
1-4	2	7.4%
5-6	10	37.0%
7-8	5	18.5%
9-10	2	7.4%
11-13	6	22.2%

Average and Maximum MFN Duty by Product Group for the Top 27 Vaccine Manufacturers

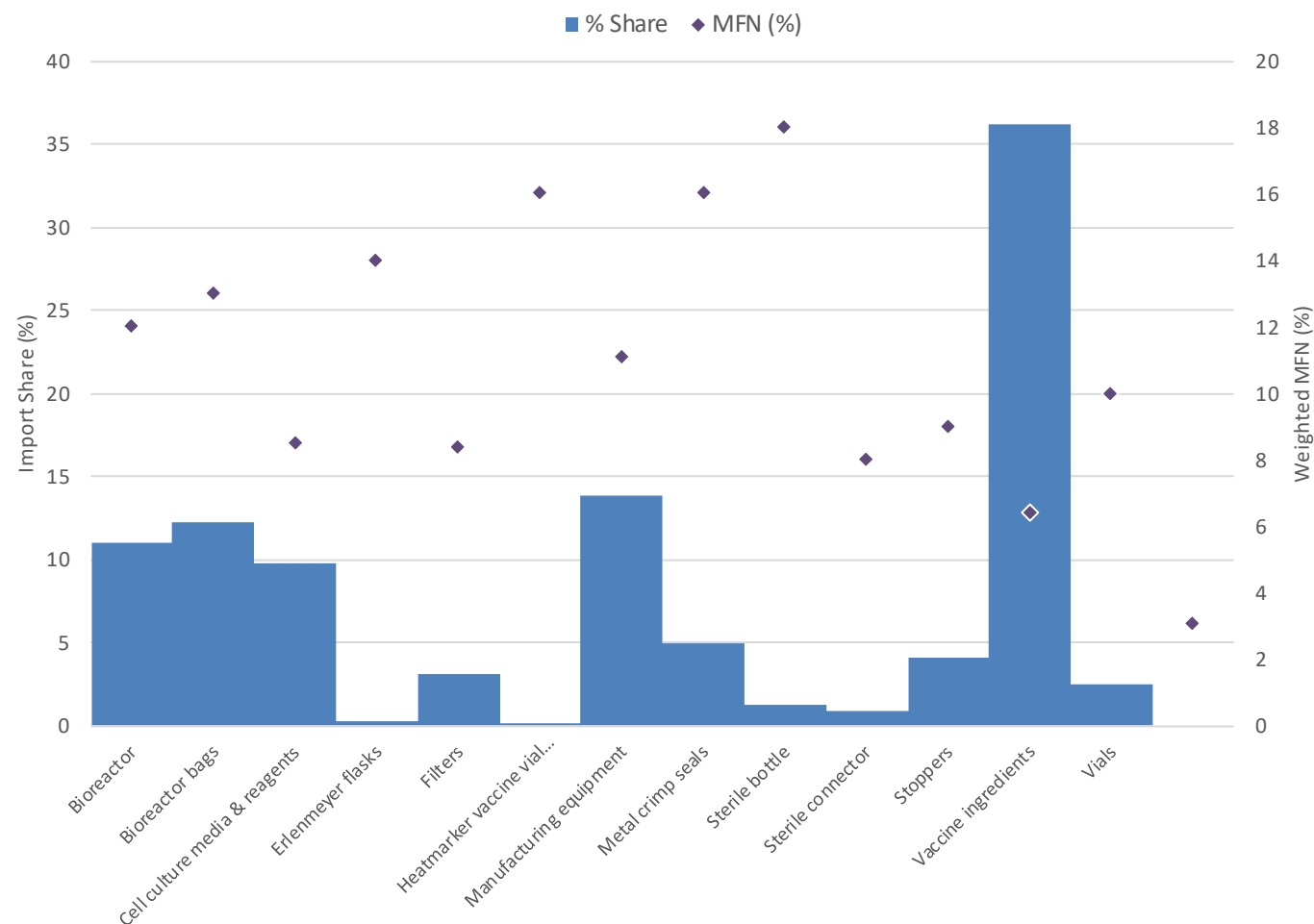
Product Group	Number of economies with tariff of at least 5% (choke point)	Weighted MFN Average (%)	Maximum MFN	No of distinct HS 6-digit Subheadings in Product Group
Bioreactor	6	1.6	15	2
Bioreactor bags	22	5.9	18	3
Cell culture media & reagents	11	1.5	14	2
Erlenmeyer flasks	12	4.0	14	3
Filters	7	2.0	9	1
Heat marker vaccine vial monitor	9	1.3	32	2
Manufacturing equipment	7	2.7	15	6
Metal crimp seals	14	4.4	22	1
Sterile bottle	23	5.9	18	1
Sterile connector	22	6.0	15	1
Stoppers	13	4.2	11	1
Vaccine ingredients	17	5.6	291	31
Vials	23	4.6	25	1

ARGENTINA

Cell shading by product group:		MFN	Imp Share		MFN	Imp Share
	MFN < 5%		5% - 15%	< 10%	GT 15%	< 10%
	No limit imp share			=> 10%		=> 10%

Product Group	Weighted	Imports
	MFN (%)	% Share
All Vaccine Inputs	9.6	100.0
Bioreactor	12.0	11.0
Bioreactor bags	13.0	12.2
Cell culture media & reagents	8.5	9.7
Erlenmeyer flasks	14.0	0.2
Filters	8.4	3.1
Heatmarker vaccine vial monitor	16.0	0.2
Manufacturing equipment	11.1	13.8
Metal crimp seals	16.0	5.0
Sterile bottle	18.0	1.2
Sterile connector	8.0	0.9
Stoppers	9.0	4.1
Vaccine ingredients	6.4	36.1
Vials	10.0	2.5

Import Share and MFN Duty, by Product Group

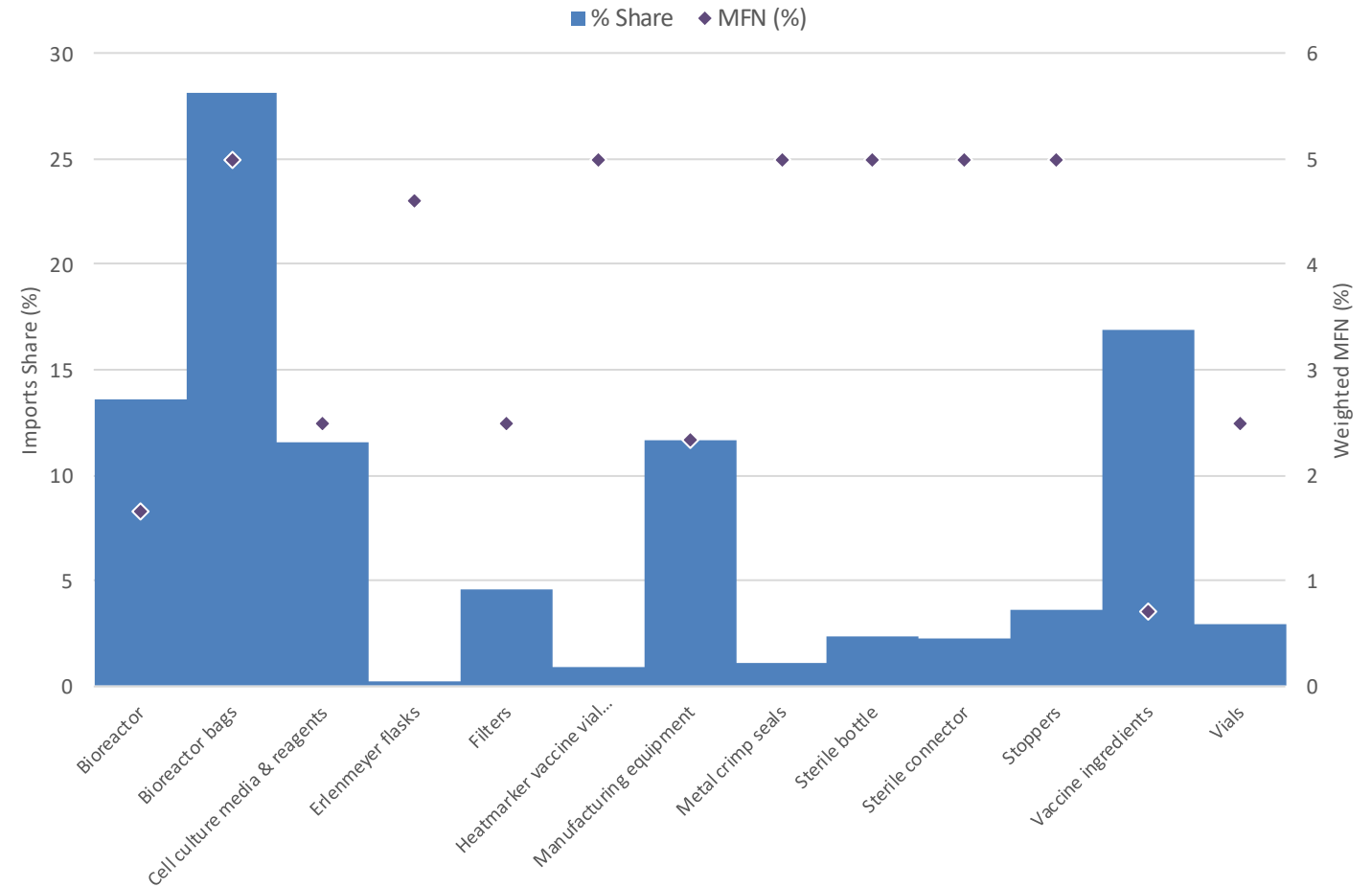


AUSTRALIA

Cell shading by product group:		MFN	Imp Share		MFN	Imp Share
	MFN < 5%		5% - 15%	< 10%	GT 15%	< 10%
	No limit imp share			=> 10%		=> 10%

Product Group	Weighted MFN (%)	Imports % Share
All Vaccine Inputs	3.0	100.0
Bioreactor	1.7	13.6
Bioreactor bags	5.0	28.1
Cell culture media & reagents	2.5	11.5
Erlenmeyer flasks	4.6	0.3
Filters	2.5	4.6
Heatmarker vaccine vial monitor	5.0	0.9
Manufacturing equipment	2.4	11.7
Metal crimp seals	5.0	1.1
Sterile bottle	5.0	2.4
Sterile connector	5.0	2.3
Stoppers	5.0	3.6
Vaccine ingredients	0.7	16.9
Vials	2.5	3.0

Imports Share and MFN Duty, by Vaccine Inputs Product Group

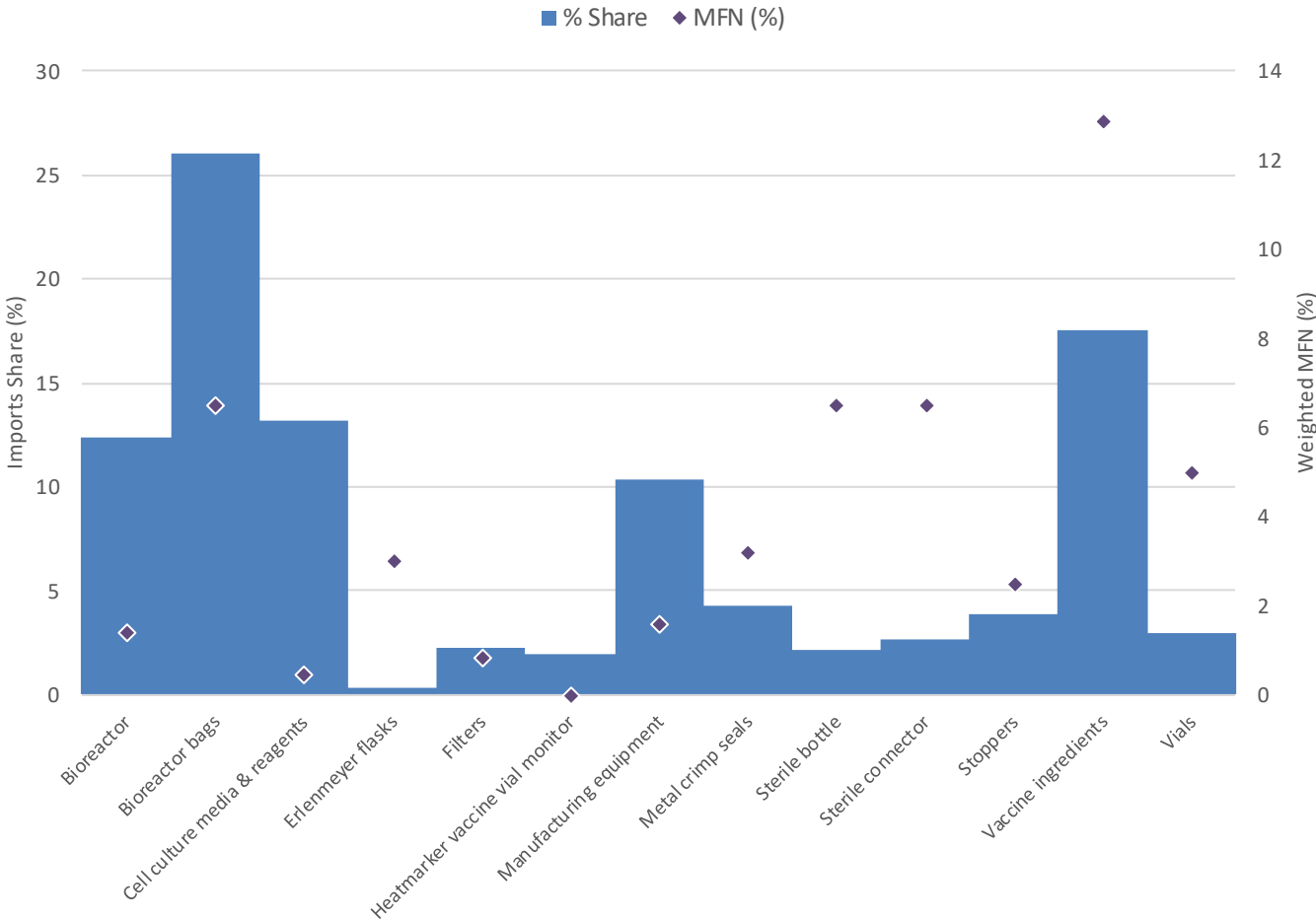


AUSTRIA

Cell shading by product group:		MFN	Imp Share		MFN	Imp Share
	MFN < 5%		5% - 15%	< 10%	GT 15%	< 10%
	No limit imp share		=> 10%			=> 10%

Product Group	Weighted MFN (%)	Imports % Share
All Vaccine Inputs	5.1	100.0
Bioreactor	1.4	12.4
Bioreactor bags	6.5	26.0
Cell culture media & reagents	0.5	13.1
Erlenmeyer flasks	3.0	0.4
Filters	0.9	2.2
Heatmarker vaccine vial monitor	0.0	1.9
Manufacturing equipment	1.6	10.3
Metal crimp seals	3.2	4.3
Sterile bottle	6.5	2.2
Sterile connector	6.5	2.7
Stoppers	2.5	3.9
Vaccine ingredients	12.9	17.5
Vials	5.0	3.0

Imports Share and MFN Duty, by Vaccine Inputs Product Group



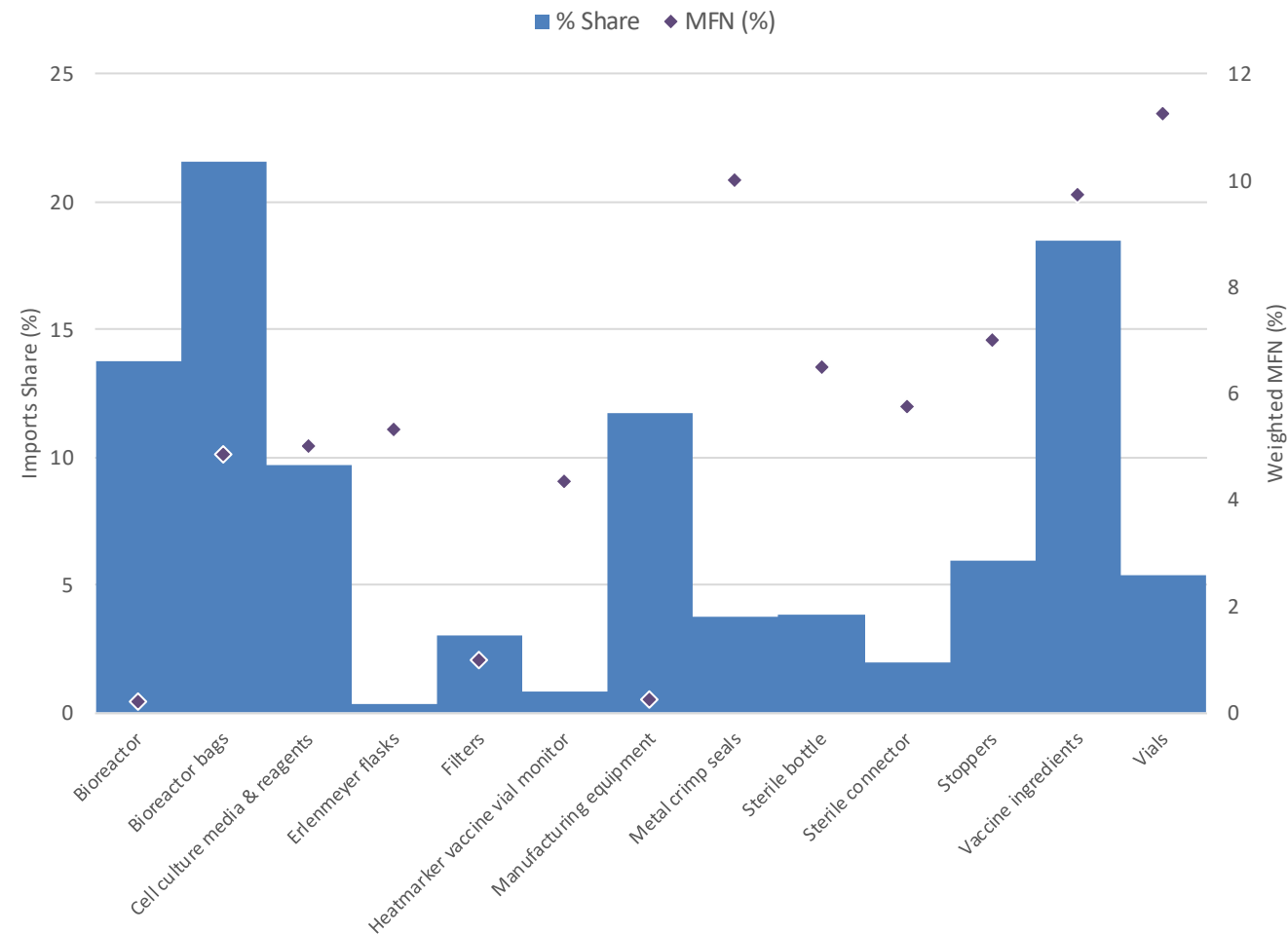
BELARUS

Cell shading by product group:		MFN	Imp Share		MFN	Imp Share
	MFN < 5%		< 10%		GT 15%	< 10%
	No limit imp share		=> 10%			=> 10%

Product Group	Weighted MFN (%)	Imports % Share
All Vaccine Inputs	5.2	100.0
Bioreactor	0.2	13.8
Bioreactor bags	4.8	21.5
Cell culture media & reagents	5.0	9.7
Erlenmeyer flasks	5.3	0.3
Filters	1.0	3.0
Heatmarker vaccine vial monitor	4.4	0.8
Manufacturing equipment	0.2	11.7
Metal crimp seals	10.0	3.7
Sterile bottle	6.5	3.8
Sterile connector	5.8	1.9
Stoppers	7.0	5.9
Vaccine ingredients	9.7	18.5
Vials	11.3	5.3

[Back to Tariffs Table](#)

Imports Share and MFN Duty, by Vaccine Inputs Product Group

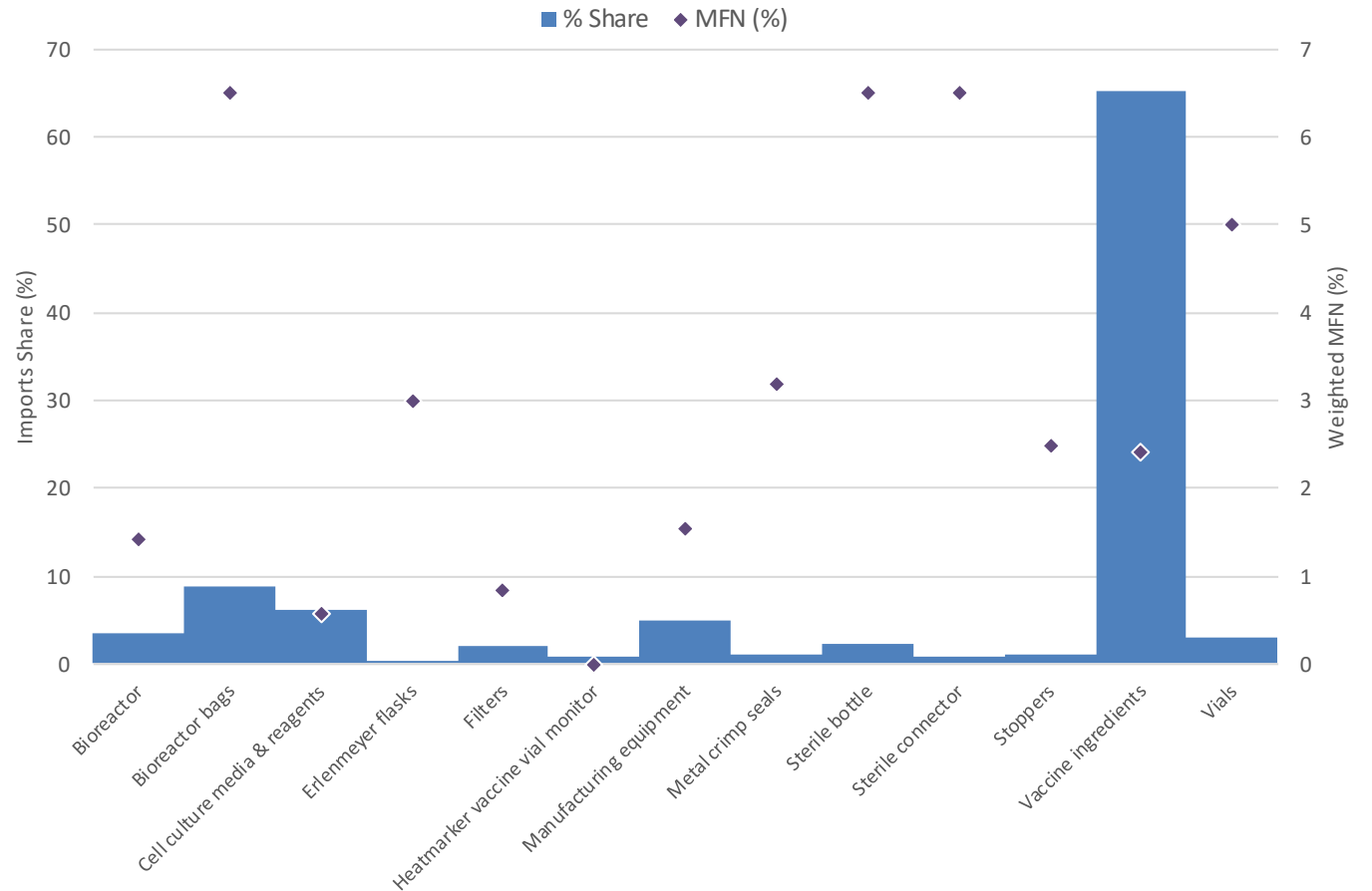


BELGIUM

Cell shading by product group:		MFN	Imp Share		MFN	Imp Share
	MFN < 5%		< 10%		GT 15%	< 10%
	No limit imp share		=> 10%			=> 10%

Product Group	Weighted MFN (%)	Imports % Share
All Vaccine Inputs	2.8	100.0
Bioreactor	1.4	3.5
Bioreactor bags	6.5	8.9
Cell culture media & reagents	0.6	6.2
Erlenmeyer flasks	3.0	0.2
Filters	0.9	2.0
Heatmarker vaccine vial monitor	0.0	0.8
Manufacturing equipment	1.6	4.9
Metal crimp seals	3.2	1.0
Sterile bottle	6.5	2.3
Sterile connector	6.5	0.9
Stoppers	2.5	1.1
Vaccine ingredients	2.4	65.2
Vials	5.0	3.1

Imports Share and MFN Duty, by Vaccine Inputs Product Group

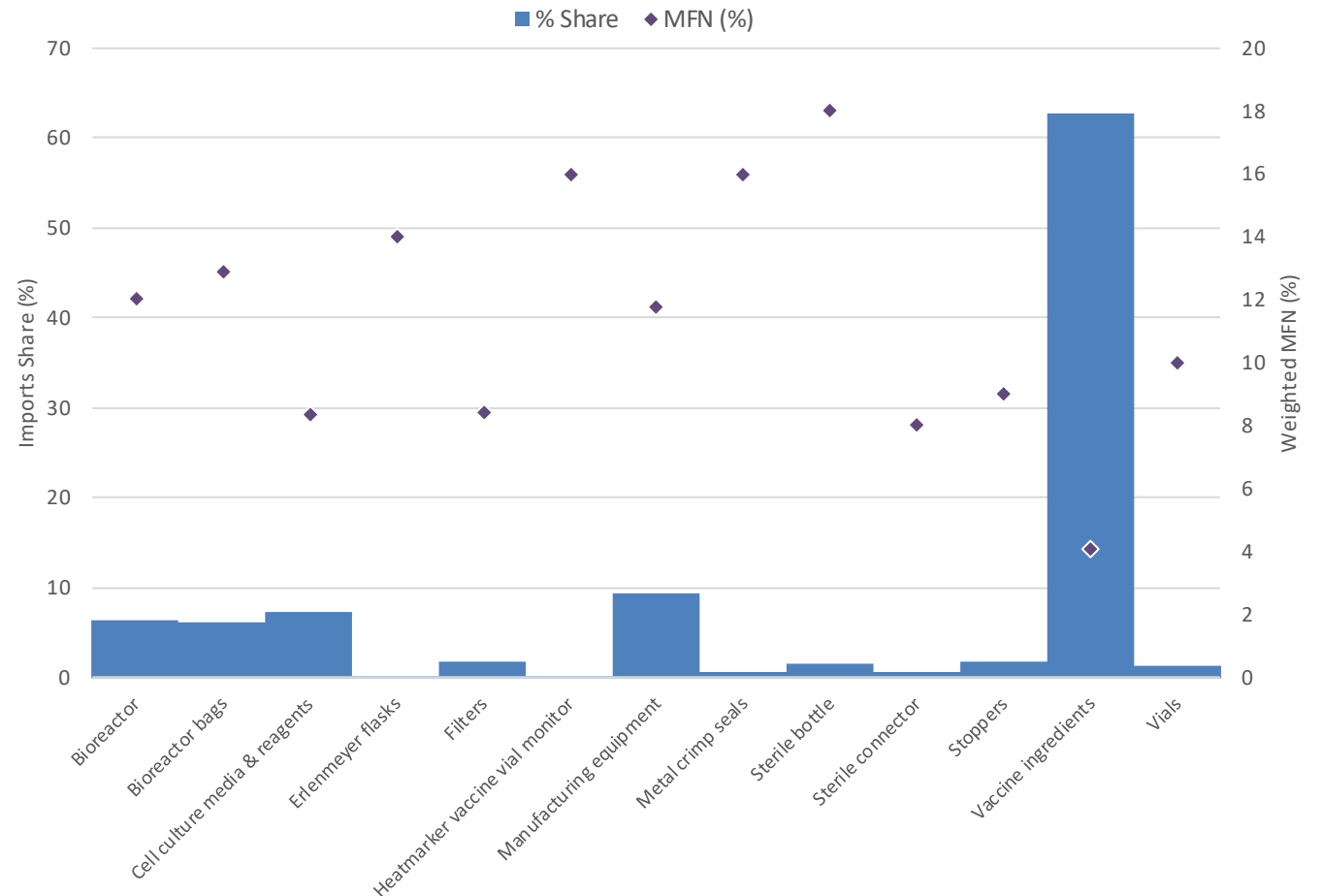


BRAZIL

Cell shading by product group:		MFN	Imp Share		MFN	Imp Share
	MFN < 5%		< 10%		GT 15%	< 10%
	No limit imp share		=> 10%			=> 10%

Product Group	Weighted MFN (%)	Imports % Share
All Vaccine Inputs	6.8	100.0
Bioreactor	12.0	6.4
Bioreactor bags	12.9	6.1
Cell culture media & reagents	8.4	7.2
Erlenmeyer flasks	14.0	0.1
Filters	8.4	1.8
Heatmarker vaccine vial monitor	16.0	0.1
Manufacturing equipment	11.8	9.4
Metal crimp seals	16.0	0.7
Sterile bottle	18.0	1.6
Sterile connector	8.0	0.7
Stoppers	9.0	1.8
Vaccine ingredients	4.1	62.7
Vials	10.0	1.3

Imports Share and MFN Duty, by Vaccine Inputs Product Group

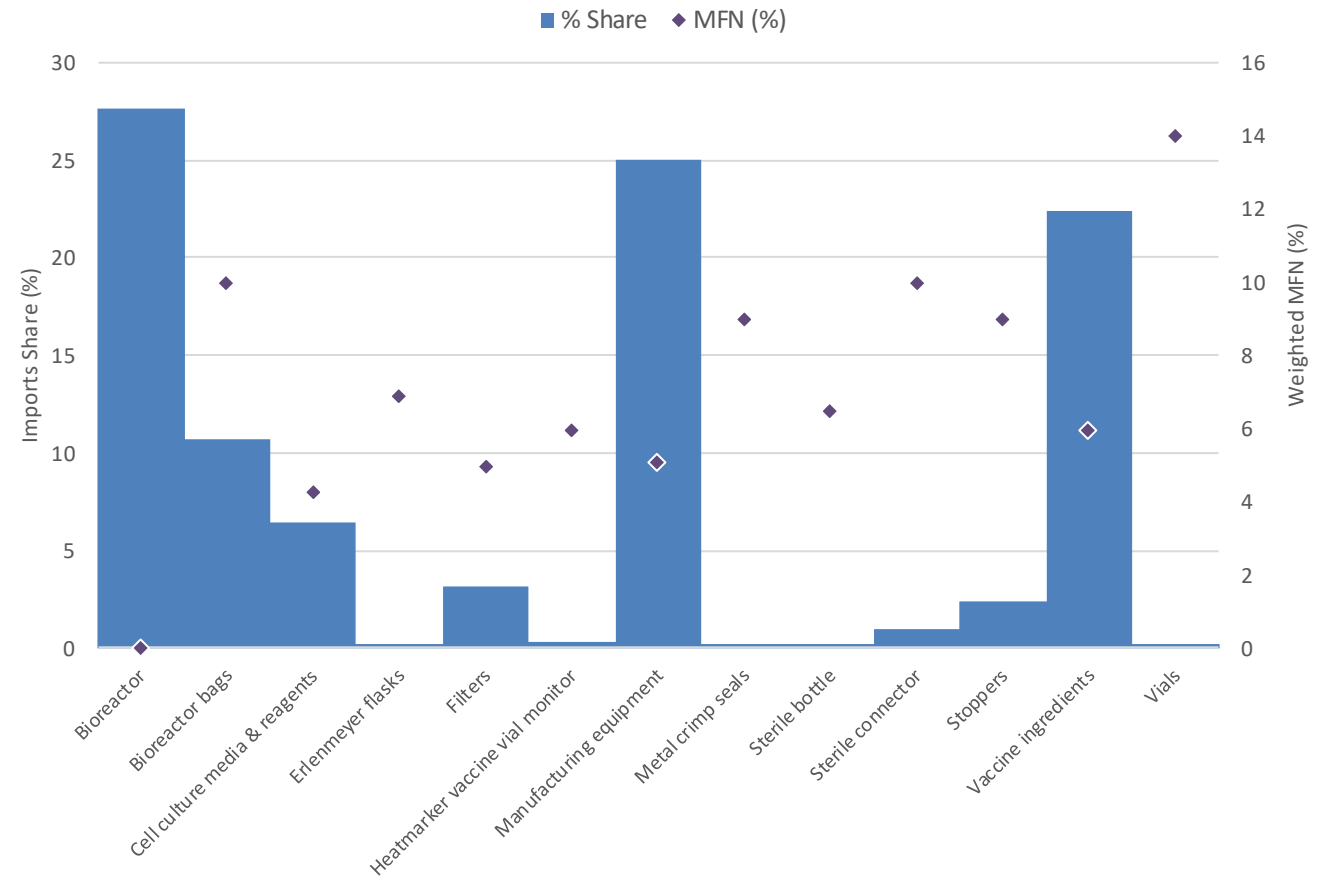


CHINA

Cell shading by product group:		MFN	Imp Share		MFN	Imp Share
	MFN < 5%		5% - 15%	< 10%	GT 15%	< 10%
	No limit imp share			=> 10%		=> 10%

Product Group	Weighted MFN (%)	Imports % Share
All Vaccine Inputs	4.5	100.0
Bioreactor	0.0	27.6
Bioreactor bags	10.0	10.7
Cell culture media & reagents	4.3	6.5
Erlenmeyer flasks	6.9	0.2
Filters	5.0	3.2
Heatmarker vaccine vial monitor	6.0	0.3
Manufacturing equipment	5.1	25.0
Metal crimp seals	9.0	0.3
Sterile bottle	6.5	0.2
Sterile connector	10.0	1.0
Stoppers	9.0	2.4
Vaccine ingredients	6.0	22.4
Vials	14.0	0.2

Imports Share and MFN Duty, by Vaccine Inputs Product Group

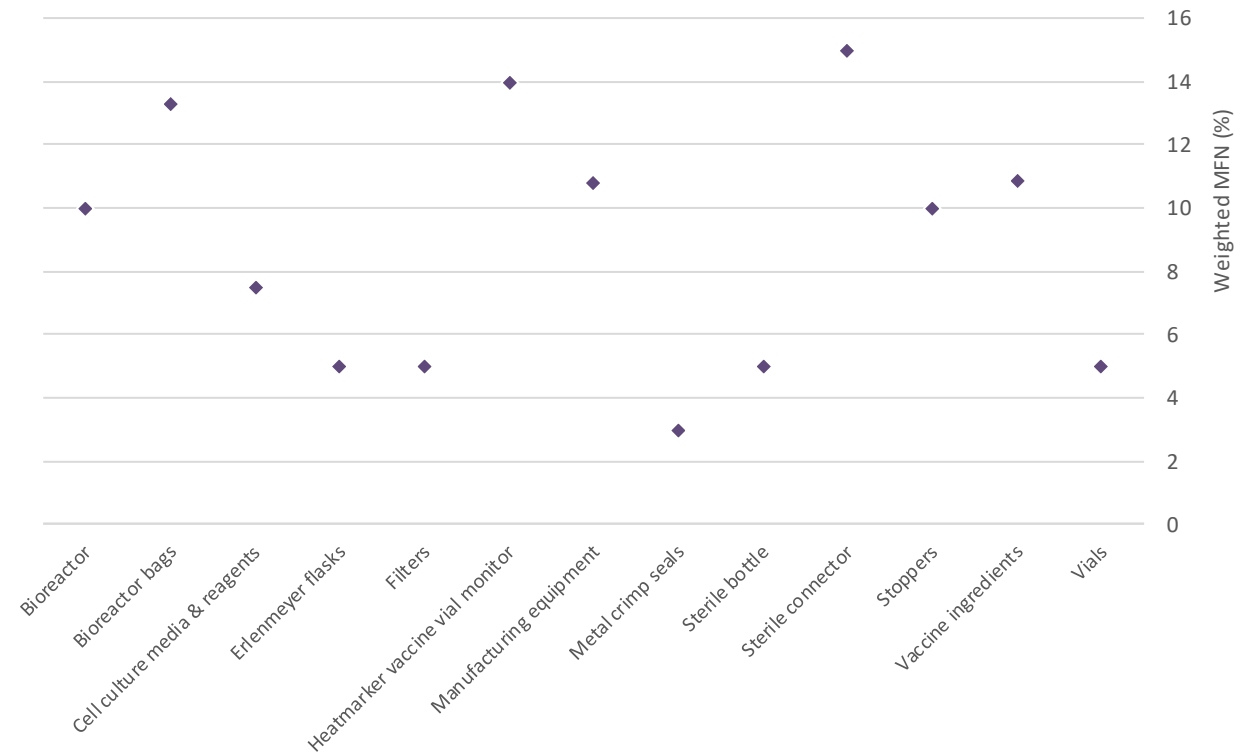


CUBA (no import data)

Cell shading by product group:		MFN	Imp Share		MFN	Imp Share
	MFN < 5%		5% - 15%	< 10%	GT 15%	< 10%
	No limit imp share			=> 10%		=> 10%

Product Group	Weighted MFN (%)	Imports % Share
All Vaccine Inputs	10.3	
Bioreactor	10.0	
Bioreactor bags	13.3	
Cell culture media & reagents	7.5	
Erlenmeyer flasks	5.0	
Filters	5.0	
Heatmarker vaccine vial monitor	14.0	
Manufacturing equipment	10.8	
Metal crimp seals	3.0	
Sterile bottle	5.0	
Sterile connector	15.0	
Stoppers	10.0	
Vaccine ingredients	10.9	
Vials	5.0	

MFN Duty, by Vaccine Inputs Product Group



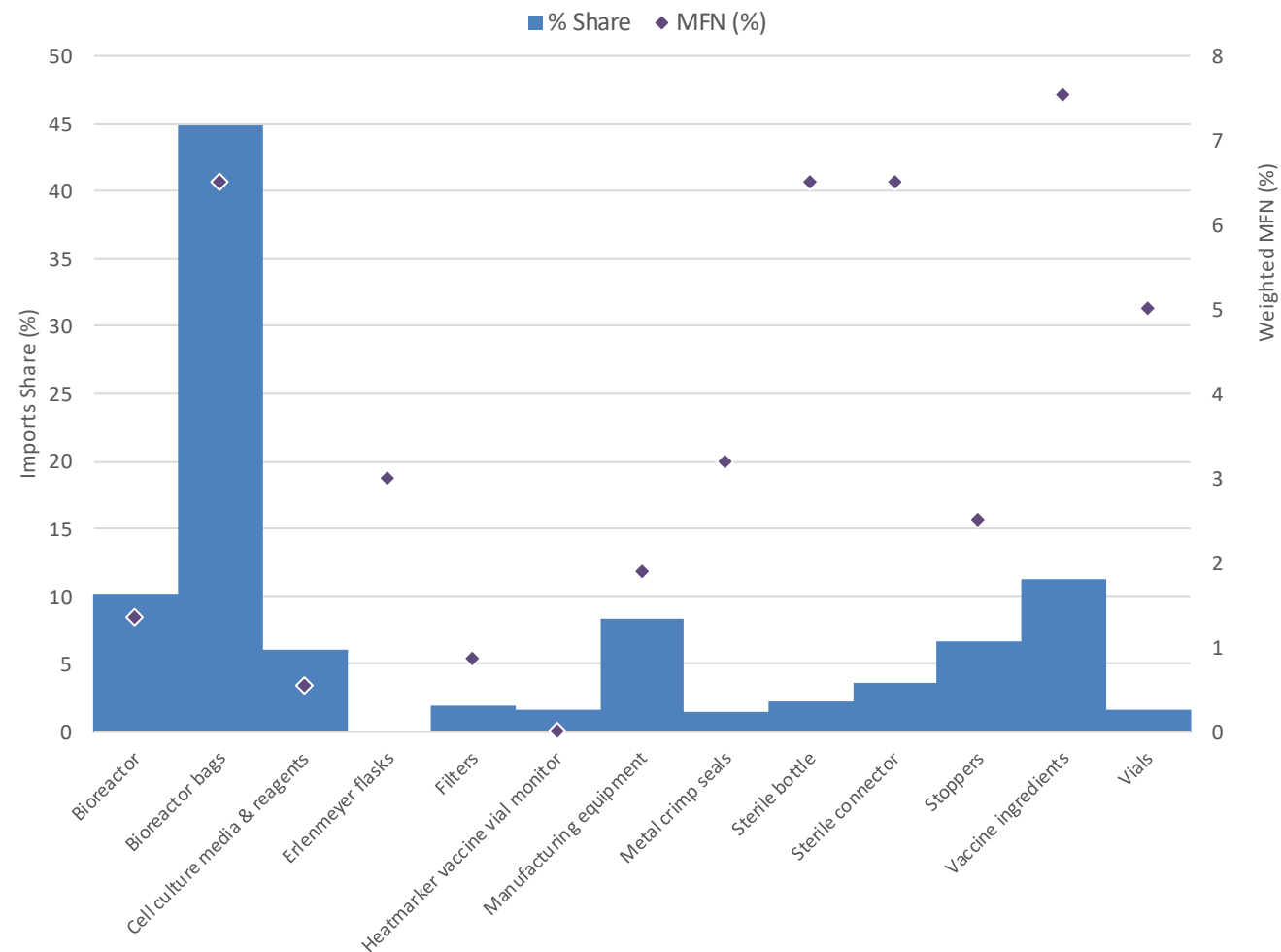
CZECH REPUBLIC

Cell shading by product group:		MFN	Imp Share		MFN	Imp Share
	MFN < 5%		< 10%		GT 15%	< 10%
	No limit imp share		=> 10%			=> 10%

Product Group	Weighted MFN (%)	Imports % Share
All Vaccine Inputs	4.8	100.0
Bioreactor	1.3	10.2
Bioreactor bags	6.5	44.8
Cell culture media & reagents	0.5	6.0
Erlenmeyer flasks	3.0	0.1
Filters	0.9	1.9
Heatmarker vaccine vial monitor	0.0	1.7
Manufacturing equipment	1.9	8.4
Metal crimp seals	3.2	1.5
Sterile bottle	6.5	2.2
Sterile connector	6.5	3.6
Stoppers	2.5	6.7
Vaccine ingredients	7.5	11.3
Vials	5.0	1.6

[Back to Tariffs Table](#)

Imports Share and MFN Duty, by Vaccine Inputs Product Group



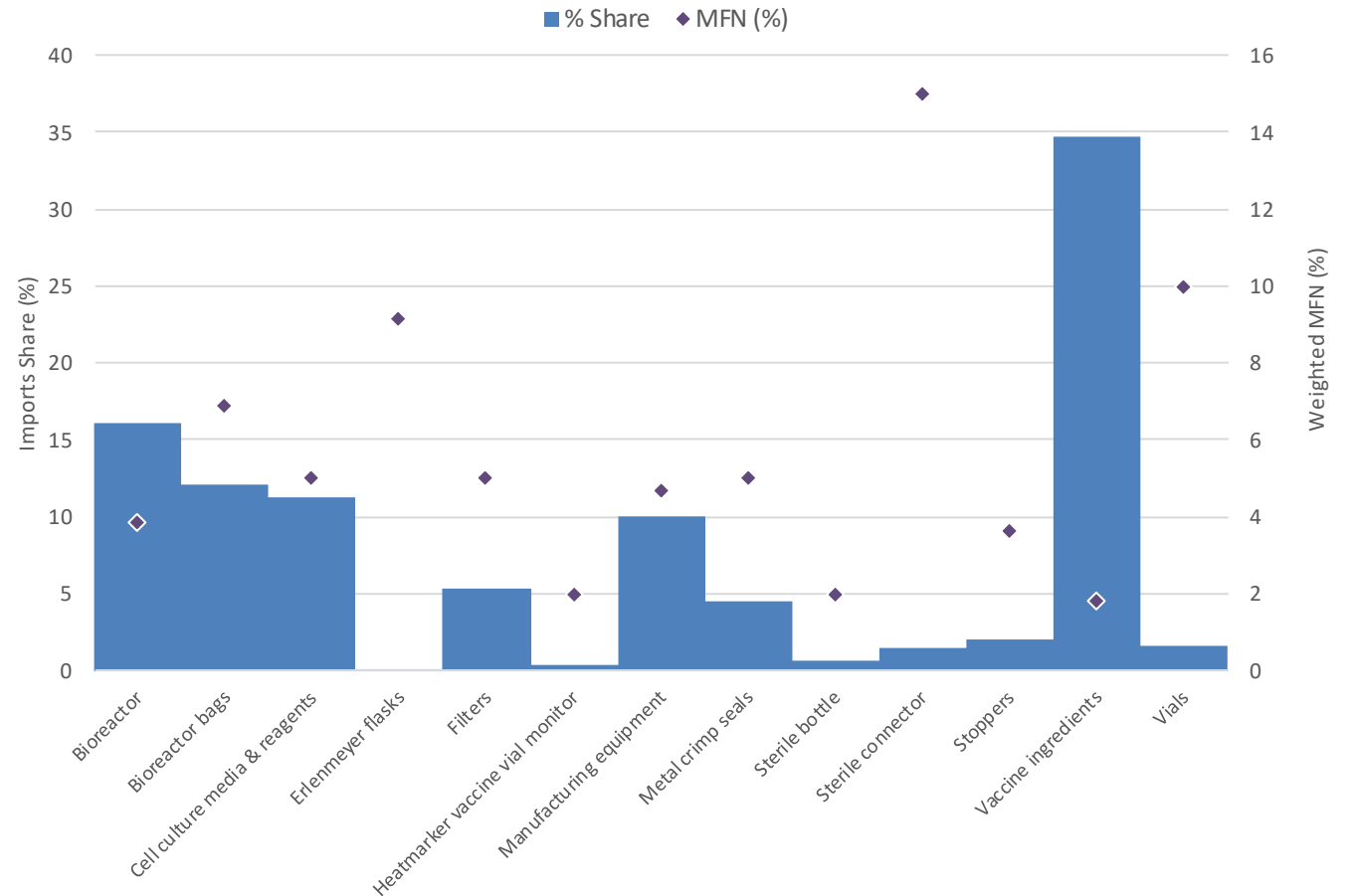
EGYPT

Cell shading by product group:		MFN	Imp Share		MFN	Imp Share
	MFN < 5%		< 10%		GT 15%	< 10%
	No limit imp share		=> 10%			=> 10%

Product Group	Weighted MFN (%)	Imports % Share
All Vaccine Inputs	4.1	100.0
Bioreactor	3.9	16.1
Bioreactor bags	6.9	12.1
Cell culture media & reagents	5.0	11.2
Erlenmeyer flasks	9.2	0.1
Filters	5.0	5.4
Heatmarker vaccine vial monitor	2.0	0.4
Manufacturing equipment	4.7	10.0
Metal crimp seals	5.0	4.5
Sterile bottle	2.0	0.6
Sterile connector	15.0	1.4
Stoppers	3.6	1.9
Vaccine ingredients	1.8	34.8
Vials	10.0	1.5

[Back to Tariffs Table](#)

Imports Share and MFN Duty, by Vaccine Inputs Product Group



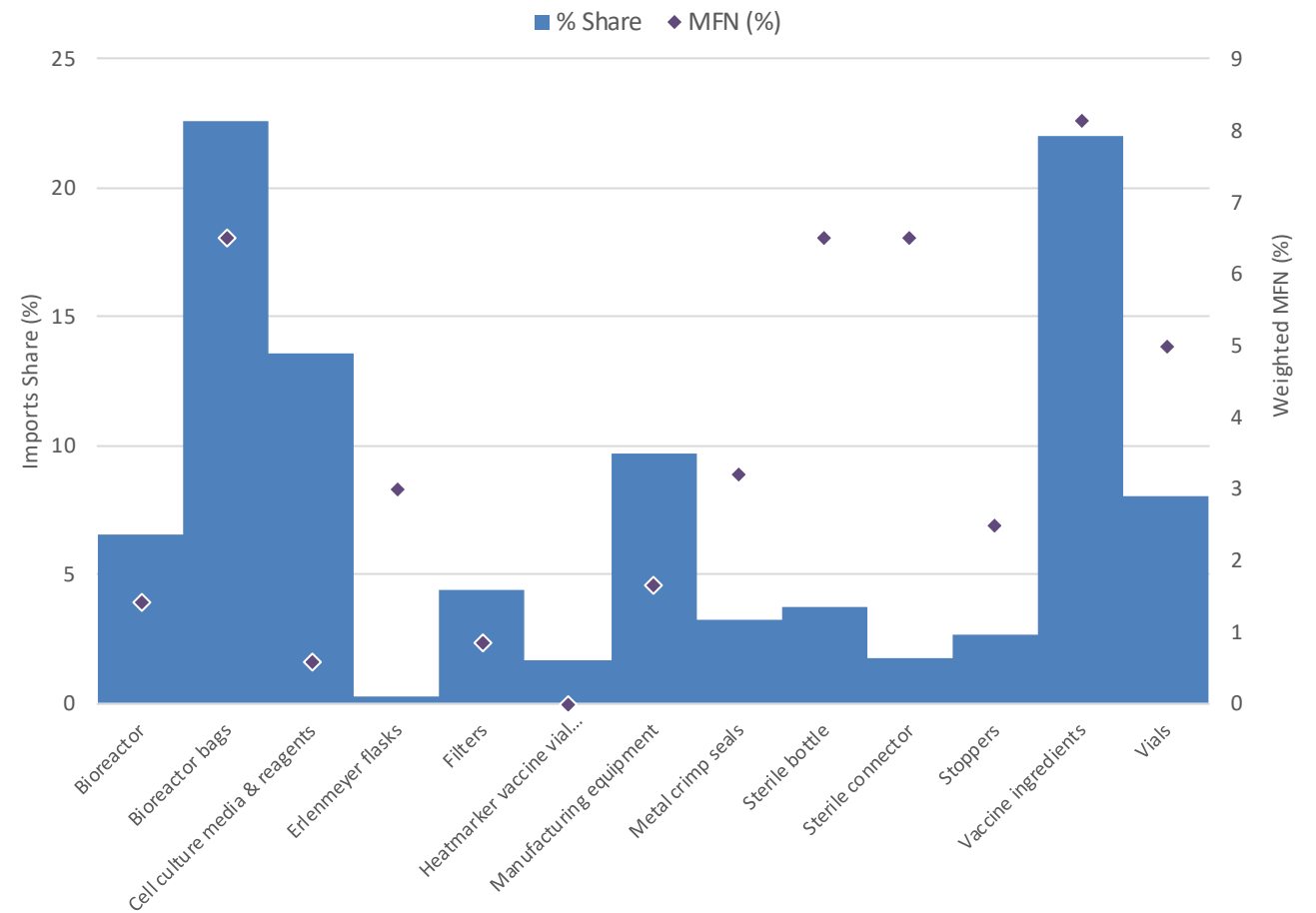
FRANCE

Cell shading by product group:		MFN	Imp Share		MFN	Imp Share
	MFN < 5%		< 10%		GT 15%	< 10%
	No limit imp share		=> 10%			=> 10%

Product Group	Weighted MFN (%)	Imports % Share
All Vaccine Inputs	4.6	100.0
Bioreactor	1.4	6.5
Bioreactor bags	6.5	22.6
Cell culture media & reagents	0.6	13.5
Erlenmeyer flasks	3.0	0.3
Filters	0.9	4.4
Heatmarker vaccine vial monitor	0.0	1.7
Manufacturing equipment	1.7	9.7
Metal crimp seals	3.2	3.2
Sterile bottle	6.5	3.8
Sterile connector	6.5	1.8
Stoppers	2.5	2.6
Vaccine ingredients	8.1	22.0
Vials	5.0	8.0

[Back to Tariffs Table](#)

Imports Share and MFN Duty, by Vaccine Inputs Product Group



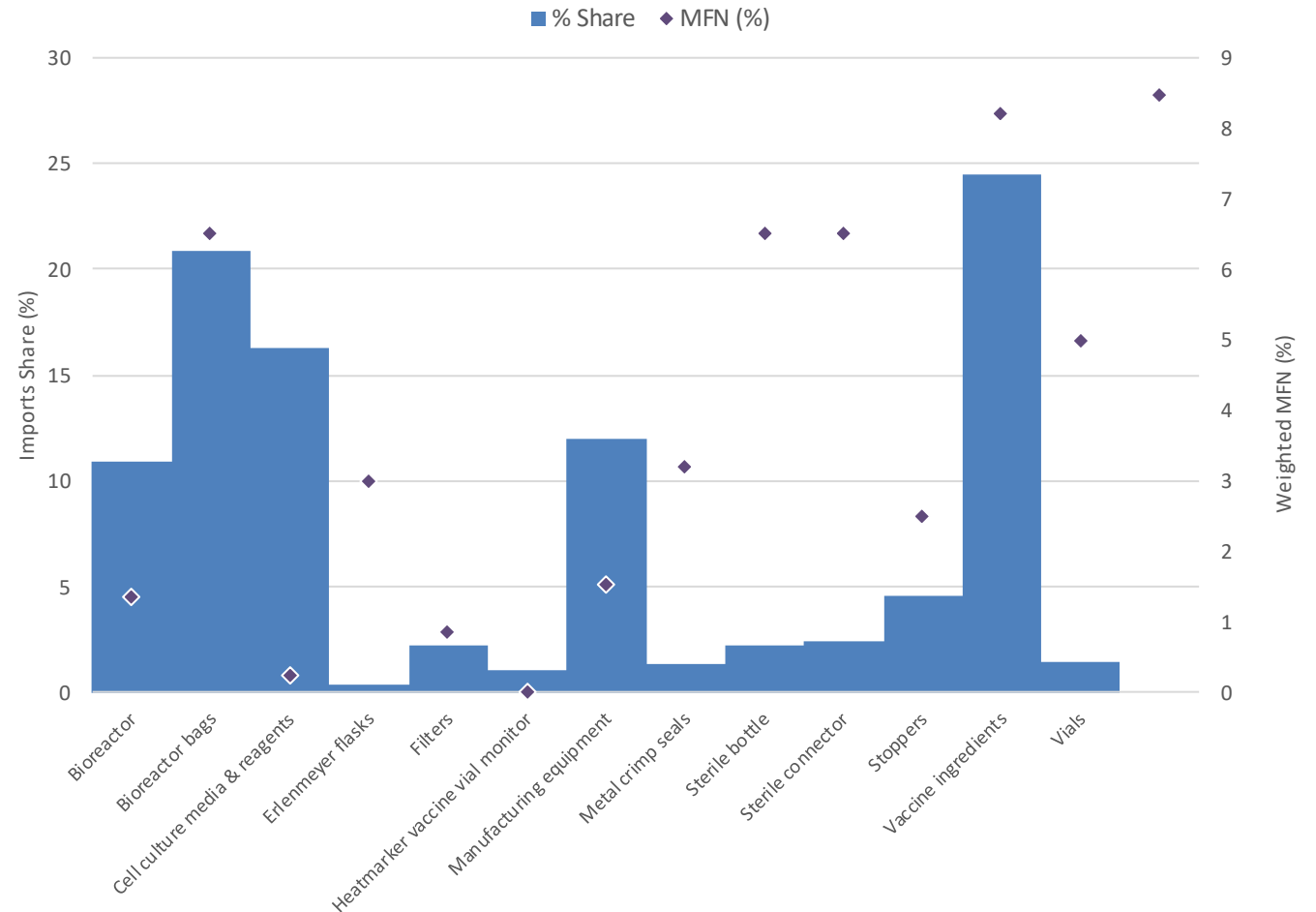
GERMANY

Cell shading by product group:		MFN	Imp Share		MFN	Imp Share
	MFN < 5%		5% - 15%	< 10%	GT 15%	< 10%
	No limit imp share			=> 10%		=> 10%

Product Group	Weighted MFN (%)	Imports % Share
All Vaccine Inputs	4.3	100.0
Bioreactor	1.4	11.0
Bioreactor bags	6.5	20.8
Cell culture media & reagents	0.2	16.3
Erlenmeyer flasks	3.0	0.3
Filters	0.9	2.2
Heatmarker vaccine vial monitor	0.0	1.0
Manufacturing equipment	1.5	12.0
Metal crimp seals	3.2	1.3
Sterile bottle	6.5	2.2
Sterile connector	6.5	2.4
Stoppers	2.5	4.5
Vaccine ingredients	8.2	24.5
Vials	5.0	1.5

[Back to Tariffs Table](#)

Imports Share and MFN Duty, by Vaccine Inputs Product Group

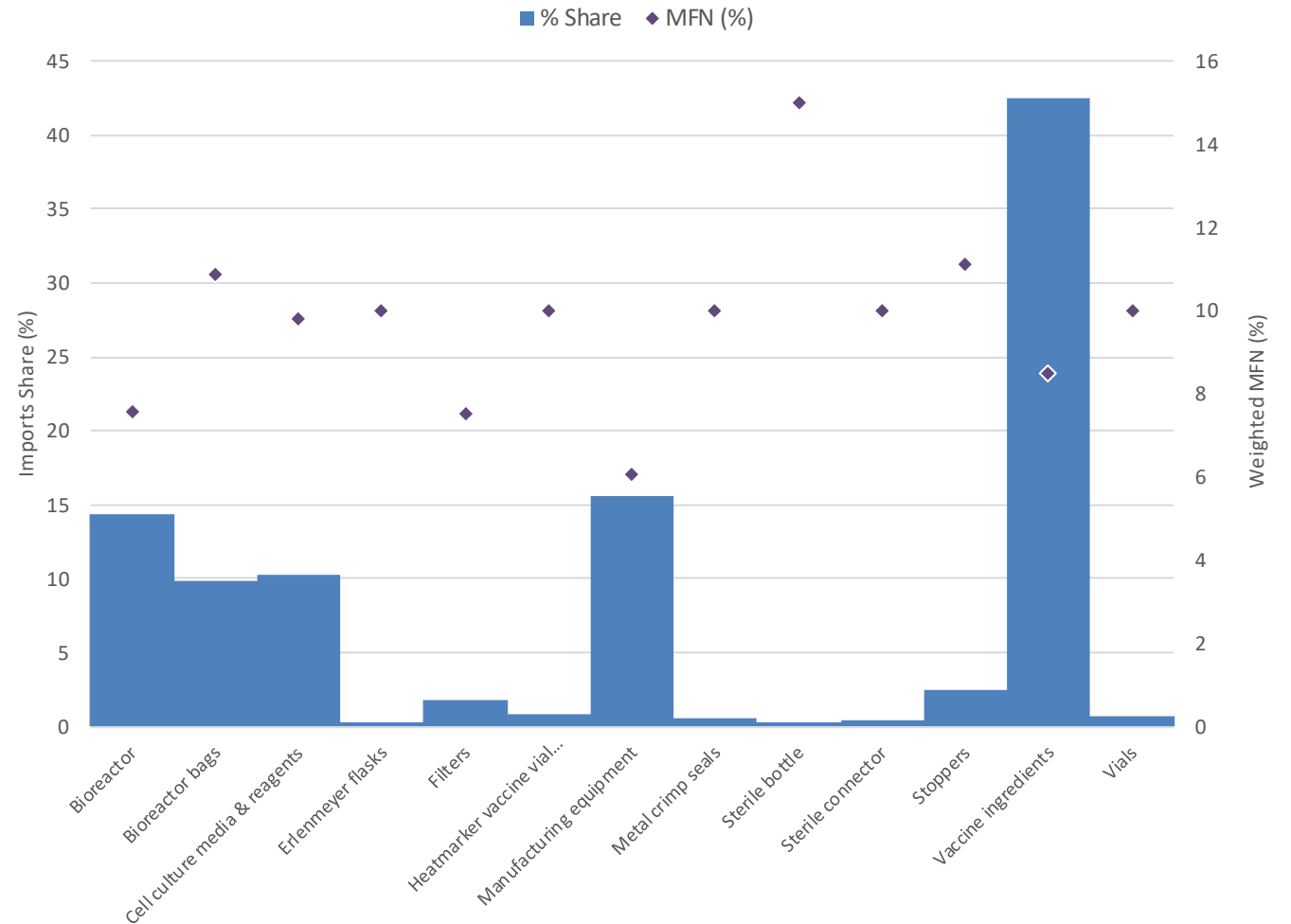


INDIA

Cell shading by product group:		MFN	Imp Share		MFN	Imp Share
	MFN < 5%		< 10%		GT 15%	< 10%
	No limit imp share		=> 10%			=> 10%

Product Group	Weighted MFN (%)	Imports % Share
All Vaccine Inputs	8.5	100.0
Bioreactor	7.6	14.3
Bioreactor bags	10.8	9.8
Cell culture media & reagents	9.8	10.2
Erlenmeyer flasks	10.0	0.3
Filters	7.5	1.8
Heatmarker vaccine vial monitor	10.0	0.9
Manufacturing equipment	6.1	15.5
Metal crimp seals	10.0	0.6
Sterile bottle	15.0	0.4
Sterile connector	10.0	0.5
Stoppers	11.1	2.5
Vaccine ingredients	8.5	42.4
Vials	10.0	0.8

Imports Share and MFN Duty, by Vaccine Inputs Product Group

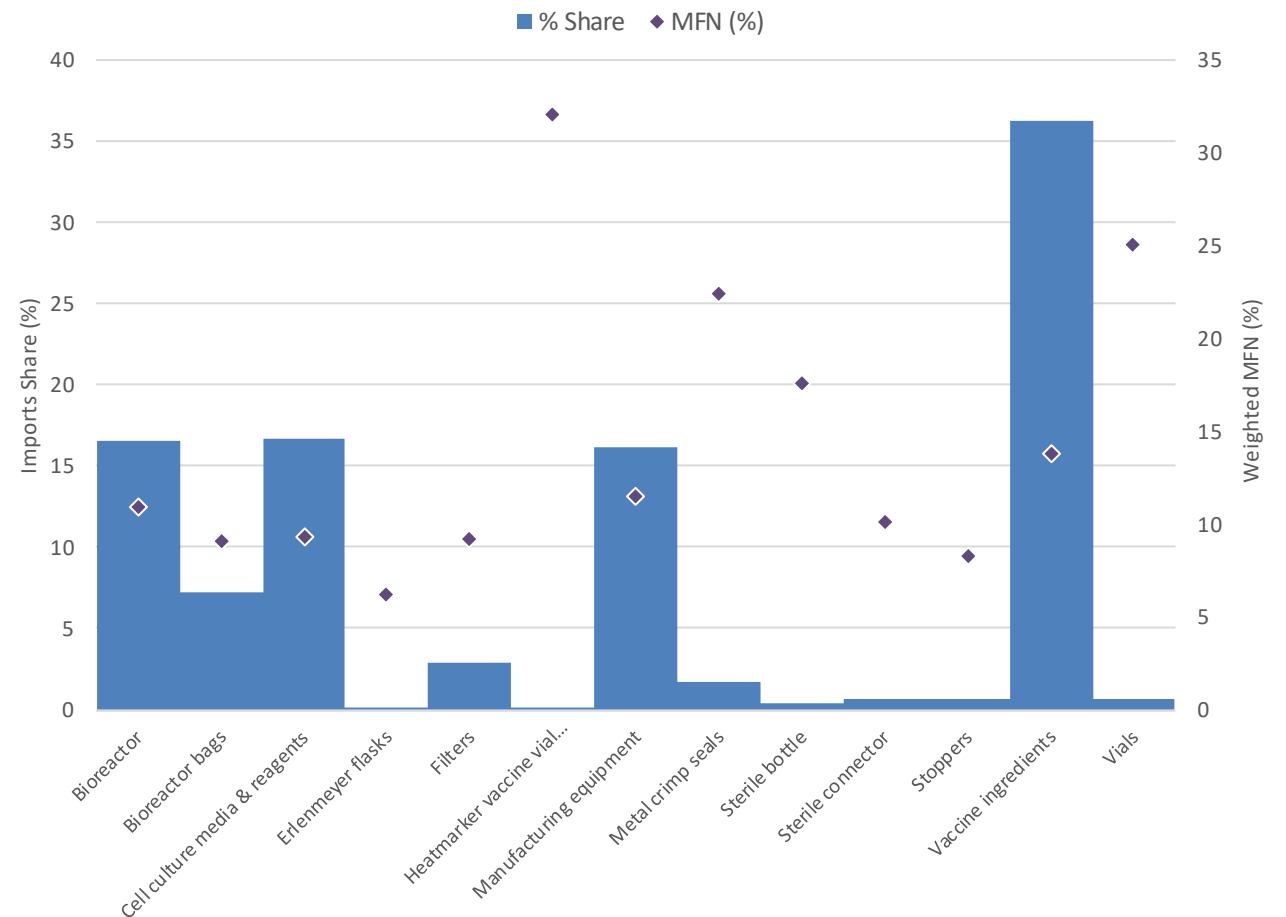


IRAN

Cell shading by product group:		MFN	Imp Share		MFN	Imp Share
	MFN < 5%		< 10%		GT 15%	< 10%
	No limit imp share		=> 10%			=> 10%

Product Group	Weighted MFN (%)	Imports % Share
All Vaccine Inputs	11.9	100.0
Bioreactor	10.9	16.5
Bioreactor bags	9.0	7.2
Cell culture media & reagents	9.2	16.6
Erlenmeyer flasks	6.1	0.1
Filters	9.2	2.8
Heatmarker vaccine vial monitor	32.0	0.1
Manufacturing equipment	11.5	16.2
Metal crimp seals	22.3	1.8
Sterile bottle	17.5	0.4
Sterile connector	10.0	0.6
Stoppers	8.3	0.6
Vaccine ingredients	13.8	36.2
Vials	25.0	0.7

Imports Share and MFN Duty, by Vaccine Inputs Product Group



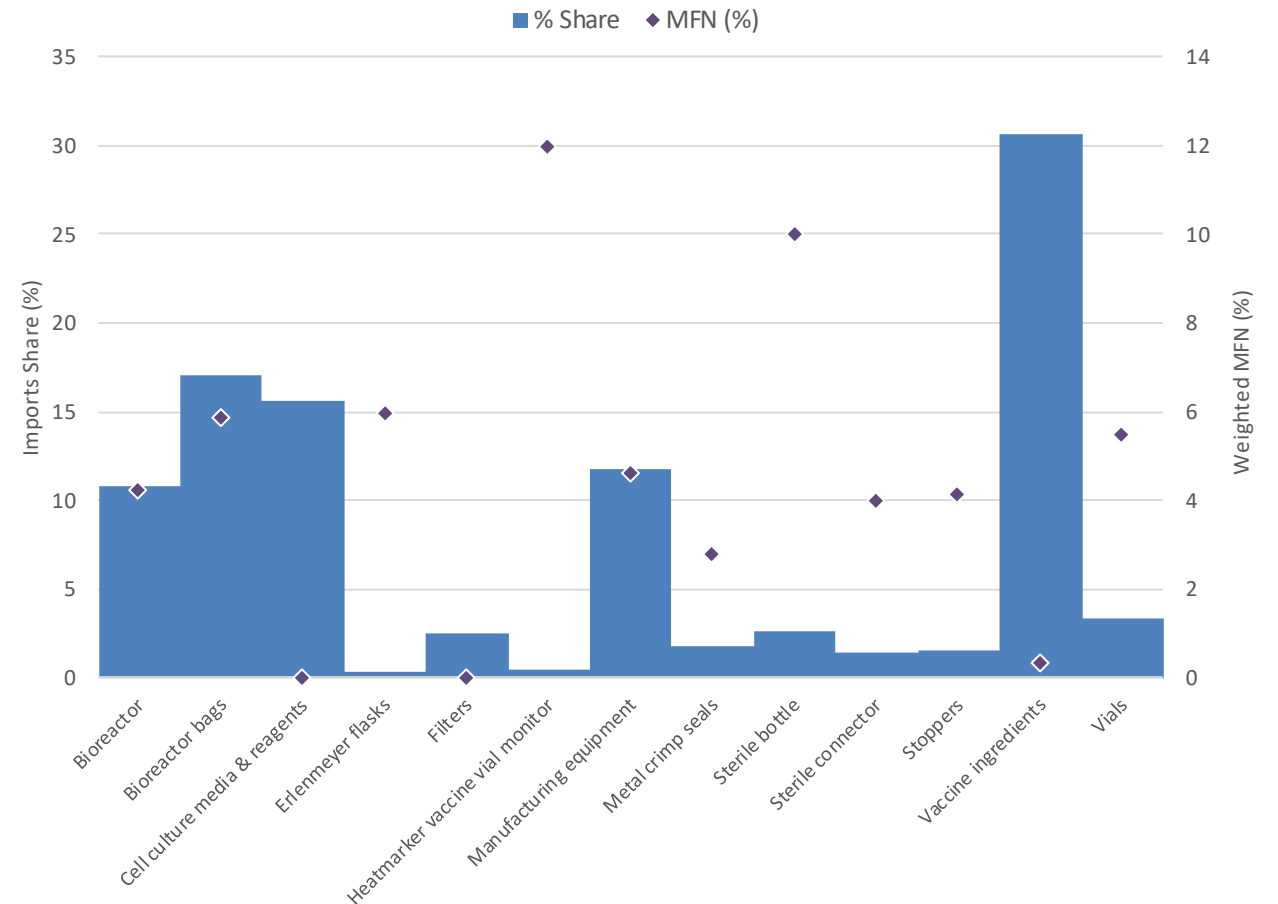
ISRAEL

Cell shading by product group:		MFN	Imp Share		MFN	Imp Share
	MFN < 5%		< 10%		GT 15%	< 10%
	No limit imp share		=> 10%			=> 10%

Product Group	Weighted MFN (%)	Imports % Share
All Vaccine Inputs	2.8	100.0
Bioreactor	4.2	10.8
Bioreactor bags	5.9	17.1
Cell culture media & reagents	0.0	15.6
Erlenmeyer flasks	6.0	0.4
Filters	0.0	2.5
Heatmarker vaccine vial monitor	12.0	0.5
Manufacturing equipment	4.6	11.8
Metal crimp seals	2.8	1.7
Sterile bottle	10.0	2.6
Sterile connector	4.0	1.4
Stoppers	4.1	1.6
Vaccine ingredients	0.3	30.6
Vials	5.5	3.4

[Back to Tariffs Table](#)

Imports Share and MFN Duty, by Vaccine Inputs Product Group

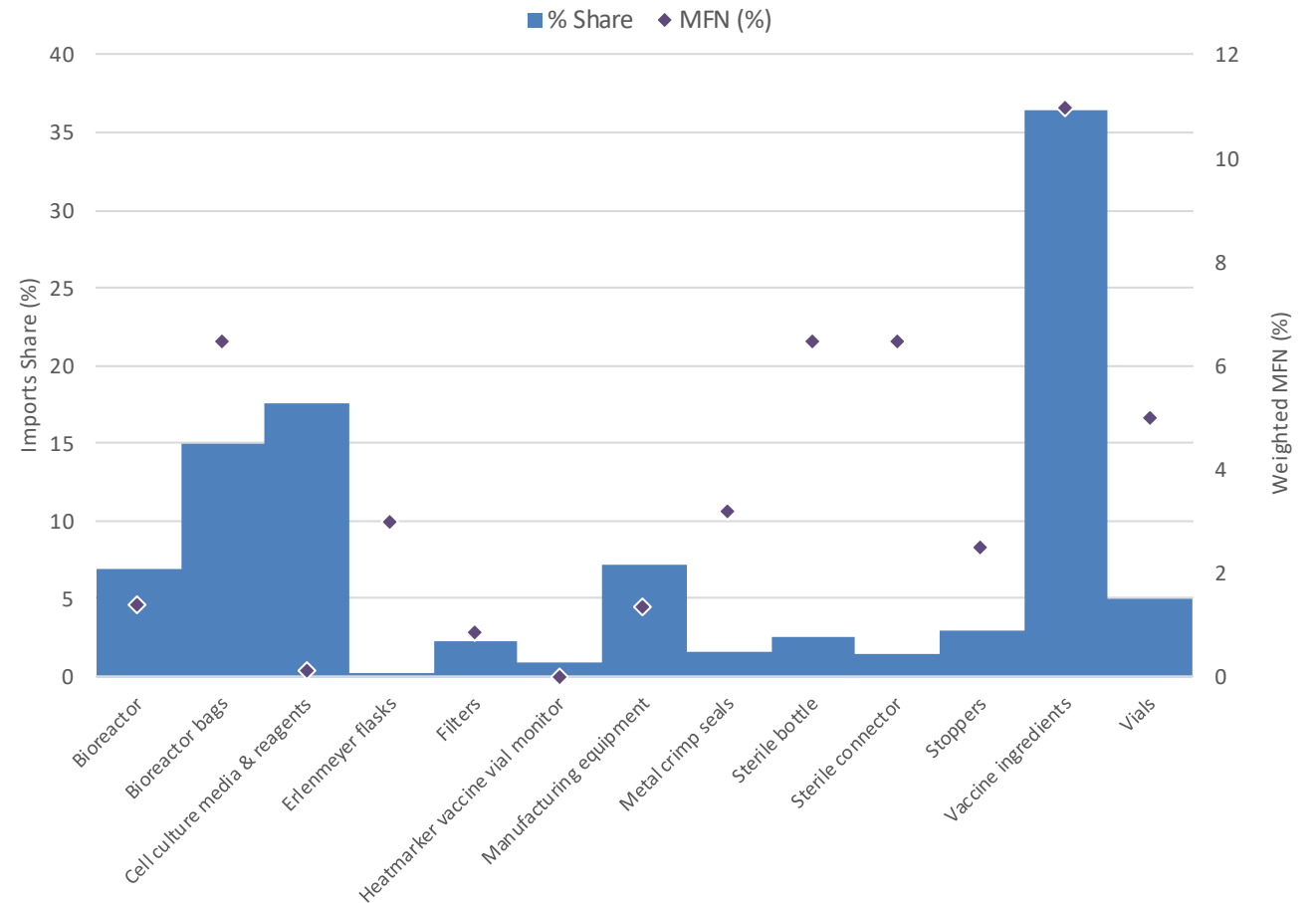


ITALY

Cell shading by product group:		MFN	Imp Share		MFN	Imp Share
	MFN < 5%		< 10%		GT 15%	< 10%
	No limit imp share		=> 10%			=> 10%

Product Group	Weighted MFN (%)	Imports % Share
All Vaccine Inputs	5.9	100.0
Bioreactor	1.4	6.9
Bioreactor bags	6.5	14.9
Cell culture media & reagents	0.1	17.5
Erlenmeyer flasks	3.0	0.2
Filters	0.9	2.3
Heatmarker vaccine vial monitor	0.0	0.9
Manufacturing equipment	1.3	7.2
Metal crimp seals	3.2	1.6
Sterile bottle	6.5	2.6
Sterile connector	6.5	1.4
Stoppers	2.5	3.0
Vaccine ingredients	11.0	36.5
Vials	5.0	5.1

Imports Share and MFN Duty, by Vaccine Inputs Product Group



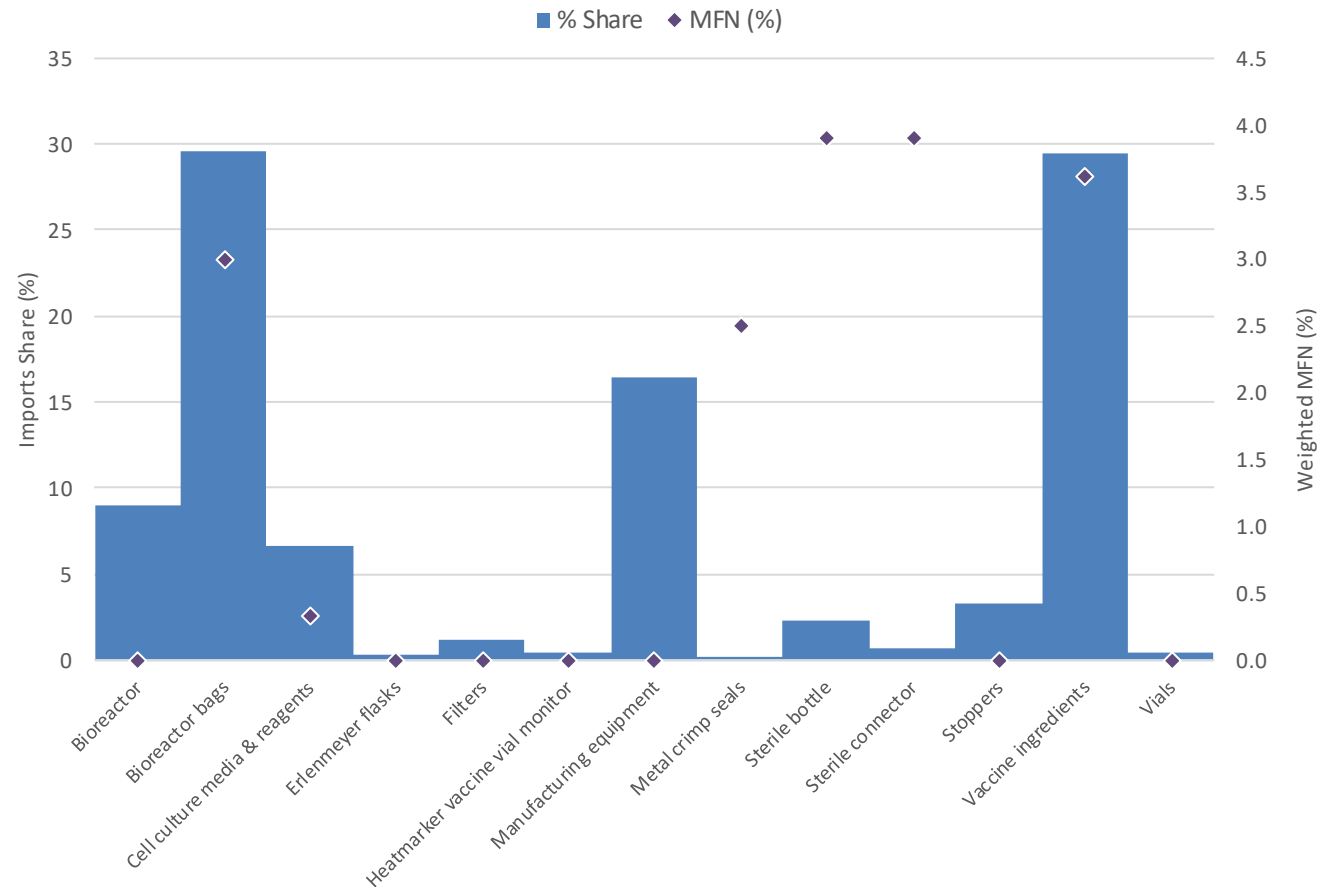
JAPAN

Cell shading by product group:		MFN	Imp Share		MFN	Imp Share
	MFN < 5%		< 10%		GT 15%	< 10%
	No limit imp share		=> 10%			=> 10%

Product Group	Weighted MFN (%)	Imports % Share
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All Vaccine Inputs	2.1	100.0
Bioreactor	0.0	9.0
Bioreactor bags	3.0	29.6
Cell culture media & reagents	0.3	6.7
Erlenmeyer flasks	0.0	0.3
Filters	0.0	1.2
Heatmarker vaccine vial monitor	0.0	0.4
Manufacturing equipment	0.0	16.4
Metal crimp seals	2.5	0.2
Sterile bottle	3.9	2.3
Sterile connector	3.9	0.7
Stoppers	0.0	3.3
Vaccine ingredients	3.6	29.4
Vials	0.0	0.5

Imports Share and MFN Duty, by Vaccine Inputs Product Group

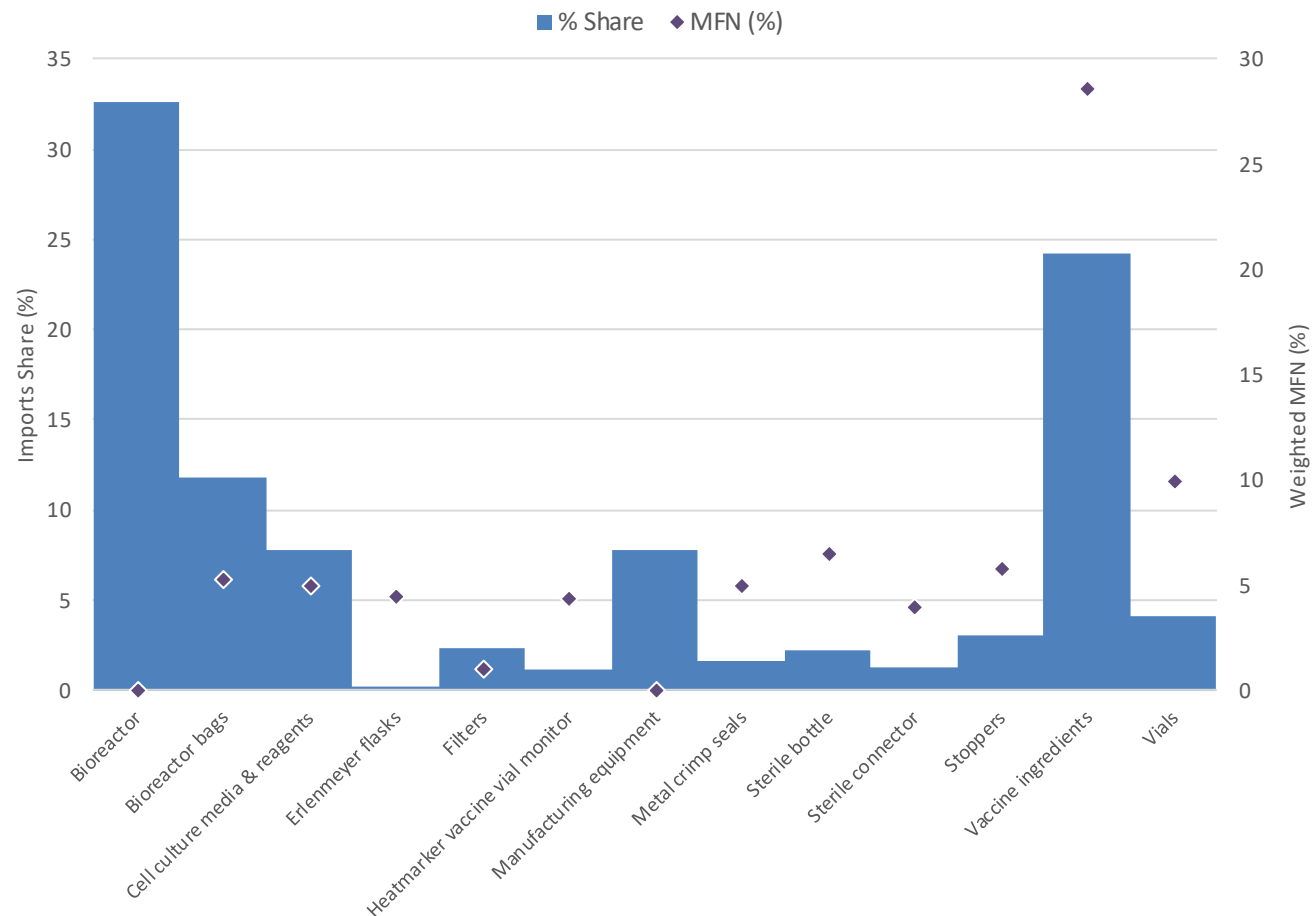


KAZAKHSTAN

Cell shading by product group:		MFN	Imp Share		MFN	Imp Share
	MFN < 5%		< 10%		GT 15%	< 10%
	No limit imp share		=> 10%			=> 10%

Product Group	Weighted MFN (%)	Imports % Share
All Vaccine Inputs	8.9	100.0
Bioreactor	0.0	32.6
Bioreactor bags	5.3	11.8
Cell culture media & reagents	5.0	7.8
Erlenmeyer flasks	4.5	0.2
Filters	1.0	2.3
Heatmarker vaccine vial monitor	4.3	1.1
Manufacturing equipment	0.0	7.7
Metal crimp seals	5.0	1.6
Sterile bottle	6.5	2.2
Sterile connector	4.0	1.3
Stoppers	5.8	3.0
Vaccine ingredients	28.6	24.3
Vials	10.0	4.1

Imports Share and MFN Duty, by Vaccine Inputs Product Group

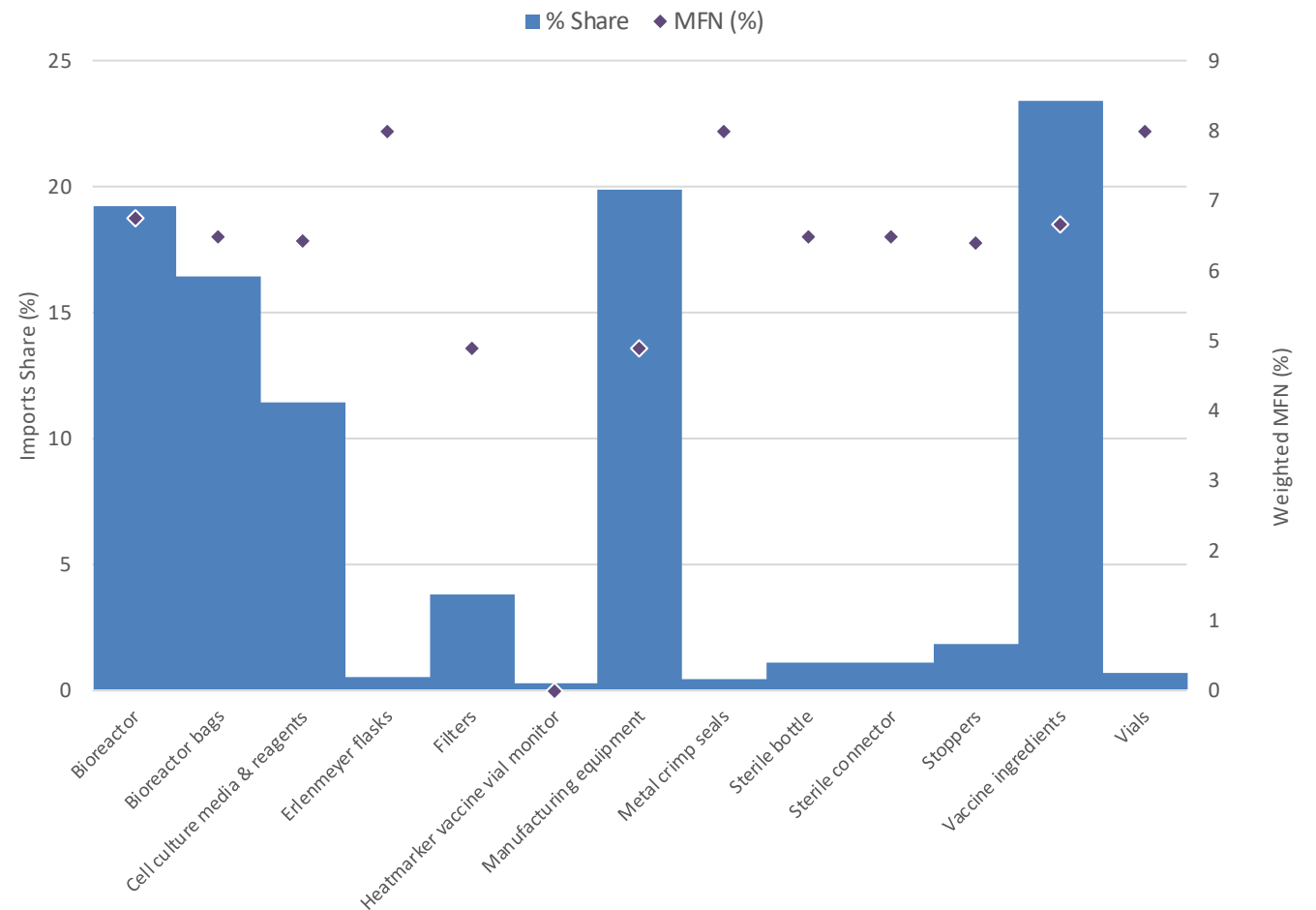


KOREA, Republic of

Cell shading by product group:		MFN	Imp Share		MFN	Imp Share
	MFN < 5%		< 10%		GT 15%	< 10%
	No limit imp share		=> 10%			=> 10%

Product Group	Weighted MFN (%)	Imports % Share
All Vaccine Inputs	6.2	100.0
Bioreactor	6.8	19.2
Bioreactor bags	6.5	16.4
Cell culture media & reagents	6.4	11.4
Erlenmeyer flasks	8.0	0.5
Filters	4.9	3.8
Heatmarker vaccine vial monitor	0.0	0.2
Manufacturing equipment	4.9	19.9
Metal crimp seals	8.0	0.4
Sterile bottle	6.5	1.1
Sterile connector	6.5	1.1
Stoppers	6.4	1.8
Vaccine ingredients	6.7	23.4
Vials	8.0	0.7

Imports Share and MFN Duty, by Vaccine Inputs Product Group

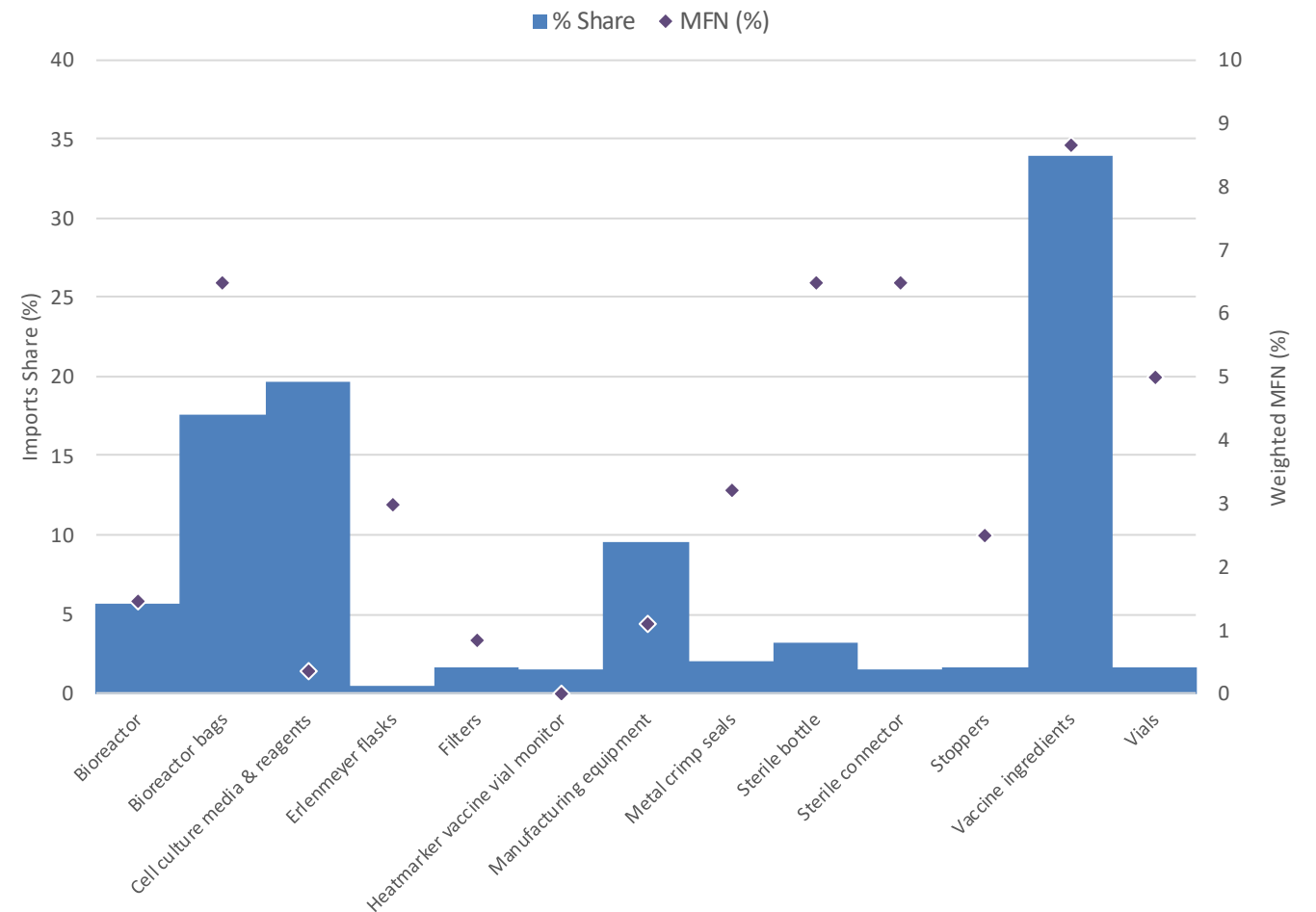


NETHERLANDS

Cell shading by product group:		MFN	Imp Share		MFN	Imp Share
	MFN < 5%		< 10%		GT 15%	< 10%
	No limit imp share		=> 10%			=> 10%

Product Group	Weighted MFN (%)	Imports % Share
All Vaccine Inputs	4.9	100.0
Bioreactor	1.4	5.7
Bioreactor bags	6.5	17.6
Cell culture media & reagents	0.4	19.7
Erlenmeyer flasks	3.0	0.4
Filters	0.9	1.7
Heatmarker vaccine vial monitor	0.0	1.5
Manufacturing equipment	1.1	9.5
Metal crimp seals	3.2	2.0
Sterile bottle	6.5	3.1
Sterile connector	6.5	1.6
Stoppers	2.5	1.6
Vaccine ingredients	8.6	33.9
Vials	5.0	1.6

Imports Share and MFN Duty, by Vaccine Inputs Product Group

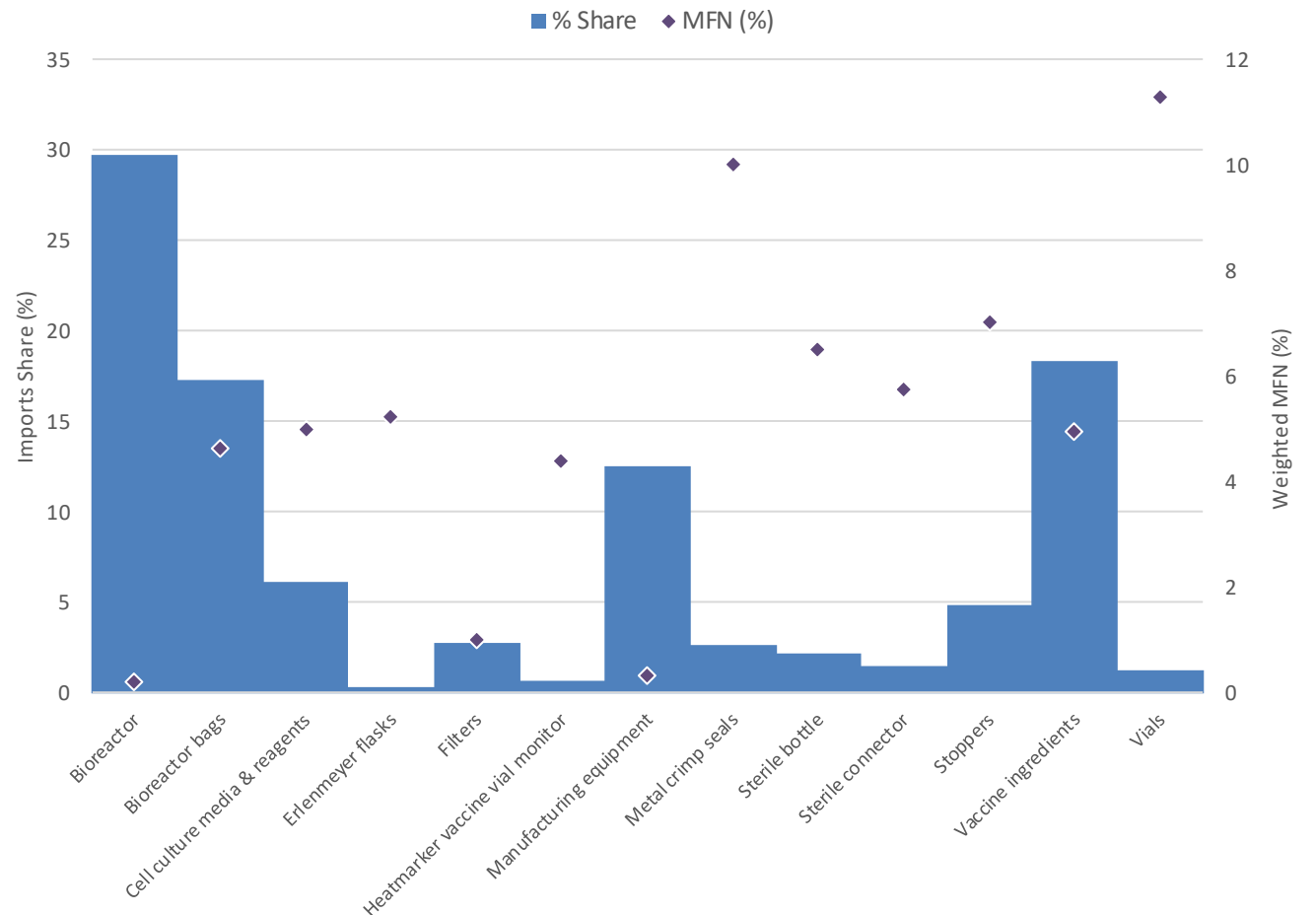


RUSSIAN FEDERATION

Cell shading by product group:		MFN	Imp Share		MFN	Imp Share
	MFN < 5%		< 10%		GT 15%	< 10%
	No limit imp share		=> 10%			=> 10%

Product Group	Weighted MFN (%)	Imports % Share
All Vaccine Inputs	3.2	100.0
Bioreactor	0.2	29.7
Bioreactor bags	4.6	17.2
Cell culture media & reagents	5.0	6.1
Erlenmeyer flasks	5.2	0.3
Filters	1.0	2.7
Heatmarker vaccine vial monitor	4.4	0.7
Manufacturing equipment	0.3	12.5
Metal crimp seals	10.0	2.6
Sterile bottle	6.5	2.2
Sterile connector	5.8	1.5
Stoppers	7.0	4.8
Vaccine ingredients	5.0	18.4
Vials	11.3	1.2

Imports Share and MFN Duty, by Vaccine Inputs Product Group

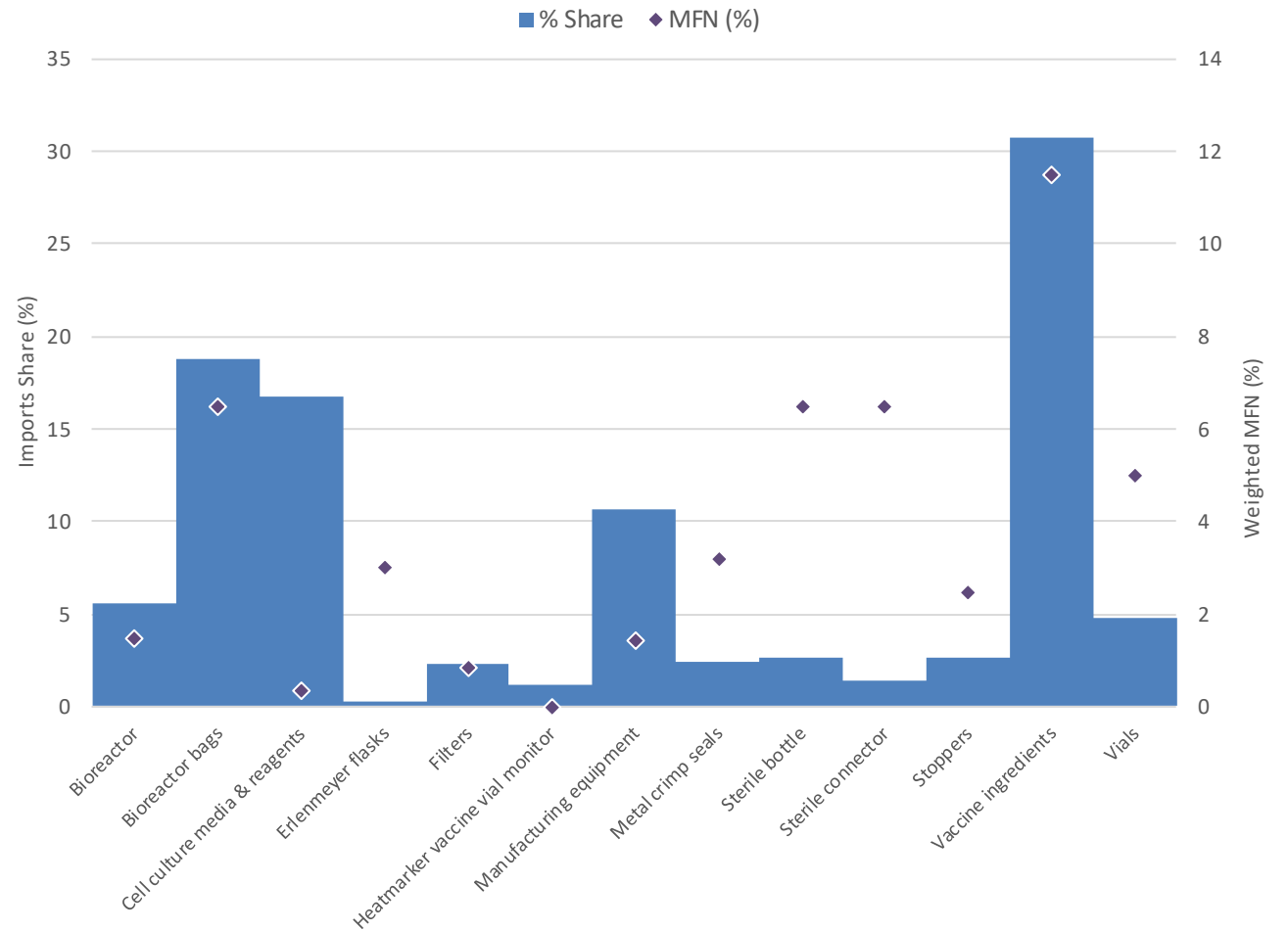


SPAIN

Cell shading by product group:		MFN	Imp Share		MFN	Imp Share
	MFN < 5%		< 10%		GT 15%	< 10%
	No limit imp share		=> 10%			=> 10%

Product Group	Weighted MFN (%)	Imports % Share
All Vaccine Inputs	5.7	100.0
Bioreactor	1.5	5.6
Bioreactor bags	6.5	18.8
Cell culture media & reagents	0.4	16.8
Erlenmeyer flasks	3.0	0.3
Filters	0.9	2.3
Heatmarker vaccine vial monitor	0.0	1.2
Manufacturing equipment	1.4	10.6
Metal crimp seals	3.2	2.4
Sterile bottle	6.5	2.6
Sterile connector	6.5	1.4
Stoppers	2.5	2.7
Vaccine ingredients	11.5	30.7
Vials	5.0	4.8

Imports Share and MFN Duty, by Vaccine Inputs Product Group

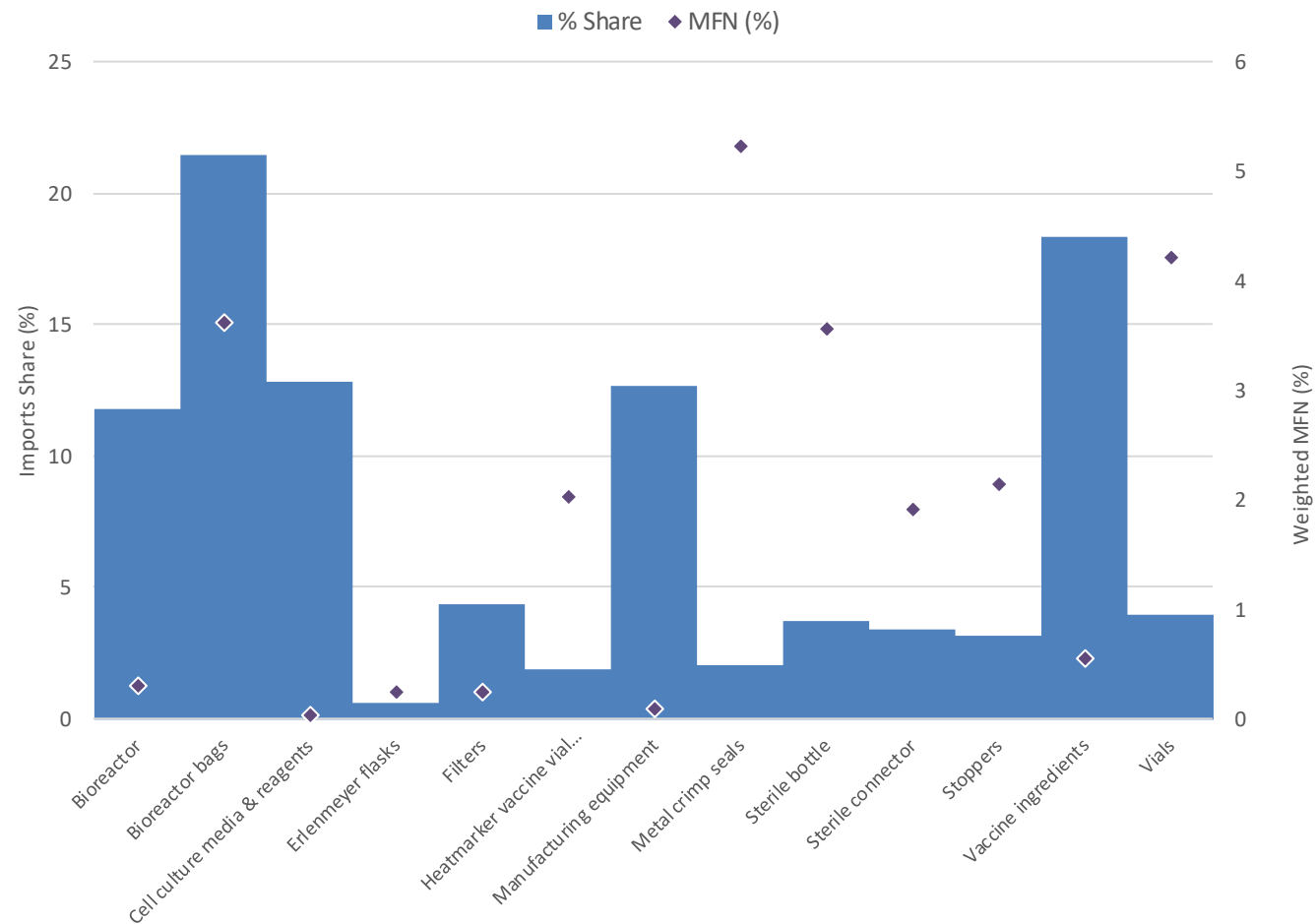


SWITZERLAND

Cell shading by product group:		MFN	Imp Share		MFN	Imp Share
	MFN < 5%		< 10%		GT 15%	< 10%
	No limit imp share		=> 10%			=> 10%

Product Group	Weighted MFN (%)	Imports % Share
All Vaccine Inputs	1.5	100.0
Bioreactor	0.3	11.8
Bioreactor bags	3.6	21.5
Cell culture media & reagents	0.0	12.8
Erlenmeyer flasks	0.3	0.6
Filters	0.3	4.3
Heatmarker vaccine vial monitor	2.0	1.9
Manufacturing equipment	0.1	12.6
Metal crimp seals	5.2	2.0
Sterile bottle	3.6	3.7
Sterile connector	1.9	3.4
Stoppers	2.1	3.1
Vaccine ingredients	0.6	18.3
Vials	4.2	3.9

Imports Share and MFN Duty, by Vaccine Inputs Product Group

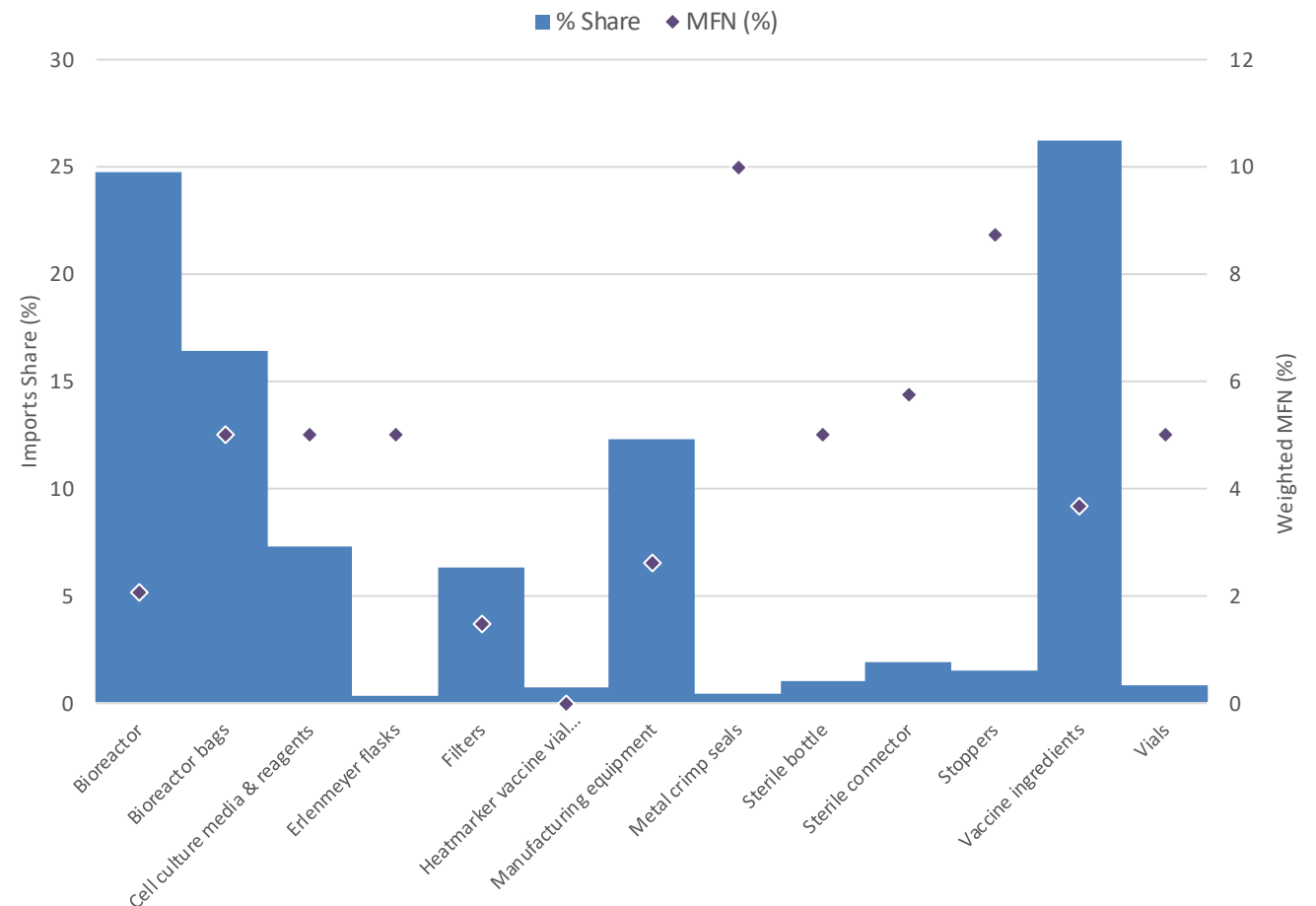


CHINESE TAIPEI

Cell shading by product group:		MFN	Imp Share		MFN	Imp Share
	MFN < 5%		< 10%		GT 15%	< 10%
	No limit imp share		=> 10%			=> 10%

Product Group	Weighted MFN (%)	Imports % Share
All Vaccine Inputs	3.5	100.0
Bioreactor	2.1	24.8
Bioreactor bags	5.0	16.4
Cell culture media & reagents	5.0	7.3
Erlenmeyer flasks	5.0	0.3
Filters	1.5	6.3
Heatmarker vaccine vial monitor	0.0	0.7
Manufacturing equipment	2.6	12.3
Metal crimp seals	10.0	0.4
Sterile bottle	5.0	1.0
Sterile connector	5.8	1.9
Stoppers	8.8	1.5
Vaccine ingredients	3.7	26.2
Vials	5.0	0.8

Imports Share and MFN Duty, by Vaccine Inputs Product Group

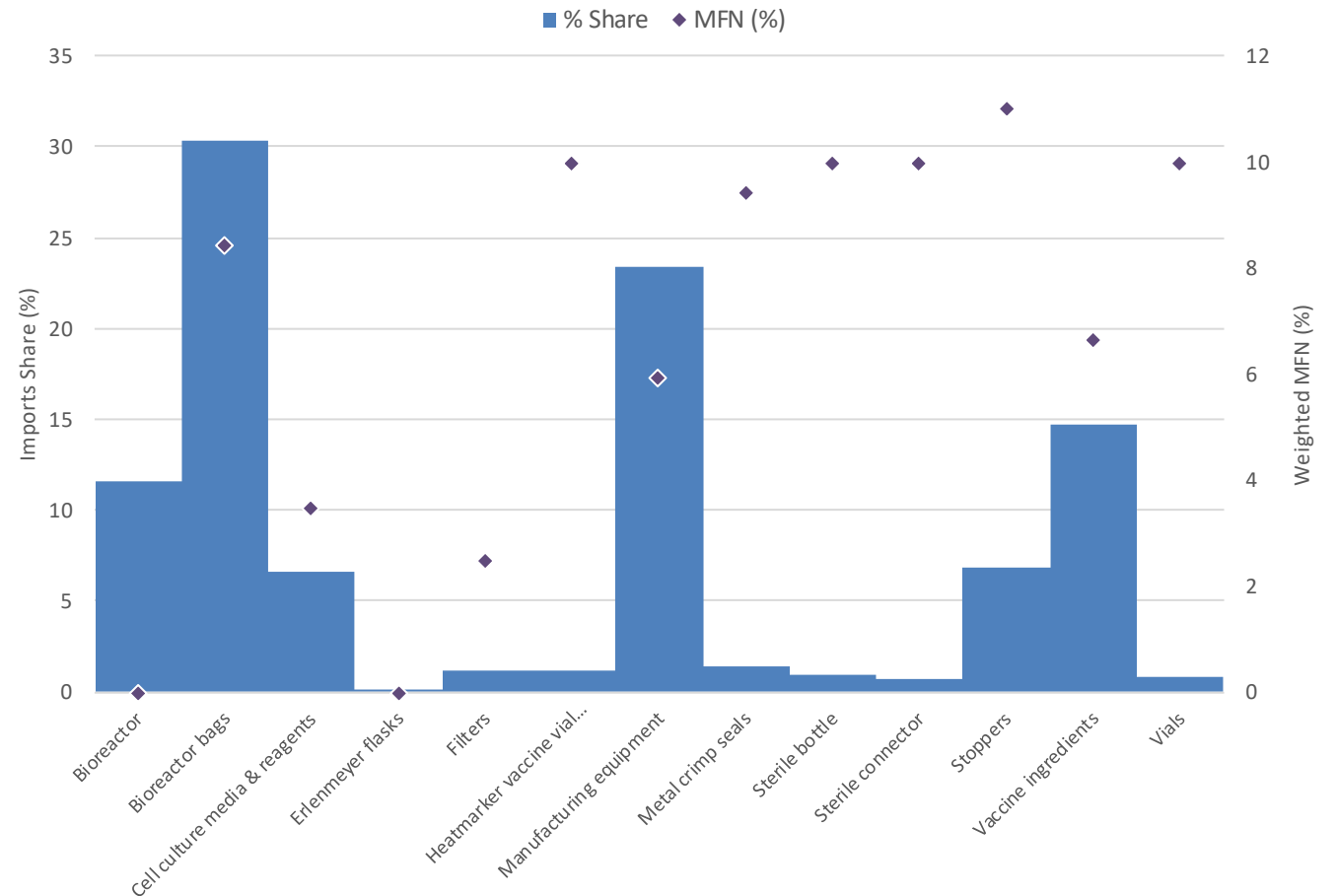


THAILAND

Cell shading by product group:		MFN	Imp Share		MFN	Imp Share
	MFN < 5%		5% - 15%	< 10%	GT 15%	< 10%
	No limit imp share			=> 10%		=> 10%

Product Group	Weighted MFN (%)	Imports % Share
All Vaccine Inputs	6.4	100.0
Bioreactor	0.0	11.6
Bioreactor bags	8.4	30.4
Cell culture media & reagents	3.5	6.6
Erlenmeyer flasks	0.0	0.1
Filters	2.5	1.2
Heatmarker vaccine vial monitor	10.0	1.2
Manufacturing equipment	5.9	23.4
Metal crimp seals	9.4	1.5
Sterile bottle	10.0	0.9
Sterile connector	10.0	0.8
Stoppers	11.0	6.9
Vaccine ingredients	6.6	14.7
Vials	10.0	0.8

Imports Share and MFN Duty, by Vaccine Inputs Product Group

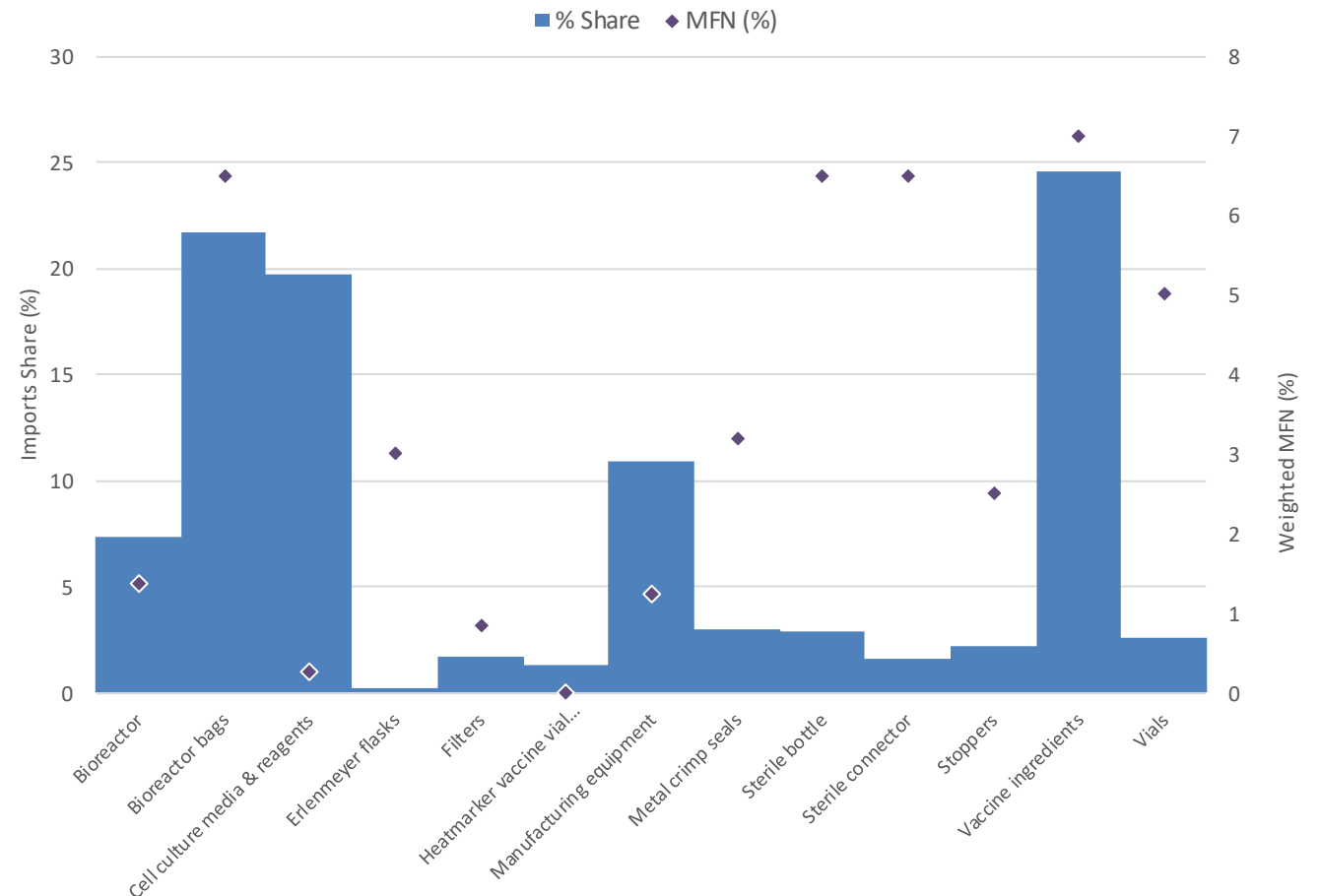


UNITED KINGDOM

Cell shading by product group:		MFN	Imp Share		MFN	Imp Share
	MFN < 5%		< 10%		GT 15%	< 10%
	No limit imp share		=> 10%			=> 10%

Product Group	Weighted MFN (%)	Imports % Share
All Vaccine Inputs	4.0	100.0
Bioreactor	1.4	7.3
Bioreactor bags	6.5	21.8
Cell culture media & reagents	0.3	19.7
Erlenmeyer flasks	3.0	0.3
Filters	0.9	1.7
Heatmarker vaccine vial monitor	0.0	1.3
Manufacturing equipment	1.2	10.9
Metal crimp seals	3.2	3.0
Sterile bottle	6.5	2.9
Sterile connector	6.5	1.6
Stoppers	2.5	2.2
Vaccine ingredients	7.0	24.6
Vials	5.0	2.6

Imports Share and MFN Duty, by Vaccine Inputs Product Group



UNITED STATES

Cell shading by product group:		MFN	Imp Share		MFN	Imp Share
	MFN < 5%		< 10%		GT 15%	< 10%
	No limit imp share		=> 10%			=> 10%

Product Group	Weighted MFN (%)	Imports % Share
All Vaccine Inputs	2.0	100.0
Bioreactor	0.9	9.5
Bioreactor bags	3.7	23.1
Cell culture media & reagents	0.4	10.8
Erlenmeyer flasks	3.7	0.4
Filters	0.0	1.9
Heatmarker vaccine vial monitor	0.0	0.7
Manufacturing equipment	0.3	12.6
Metal crimp seals	2.6	1.4
Sterile bottle	3.0	2.2
Sterile connector	2.7	1.0
Stoppers	2.2	2.9
Vaccine ingredients	2.5	30.5
Vials	1.9	3.0

Imports Share and MFN Duty, by Vaccine Inputs Product Group

