

INDUSTRIES & MARKETS

Lab-grown diamond industry

Table of Contents

01 Natural diamond overview

- Global production volume of rough diamonds 2005-2021
- Polished diamond value worldwide 2009-2022
- Global diamond production by country 2022
- Production volume of diamonds globally 2021, by political stability of producers

02 Lab-grown diamond overview

- Global market value of lab-grown diamonds 2021-2030
- Global market share of lab-grown diamonds 2016-2030
- Lab-grown diamonds selected production figures 2020

03 Production

- Global synthetic and natural gem diamond production 2015 & 2025
- Global synthetic and natural industrial diamond production 2015 & 2025
- Synthetic industrial diamond production worldwide 2013-2021
- Lab-grown diamond production 2020, by world region

04 Price

- Lab-grown diamond price in proportion to natural diamonds by channel Q4 2017-Q4 2020
- Natural and synthetic diamonds price difference 2016-2023, by weight
- Lab grown diamond retail price of Lightbox 2023, by carat size

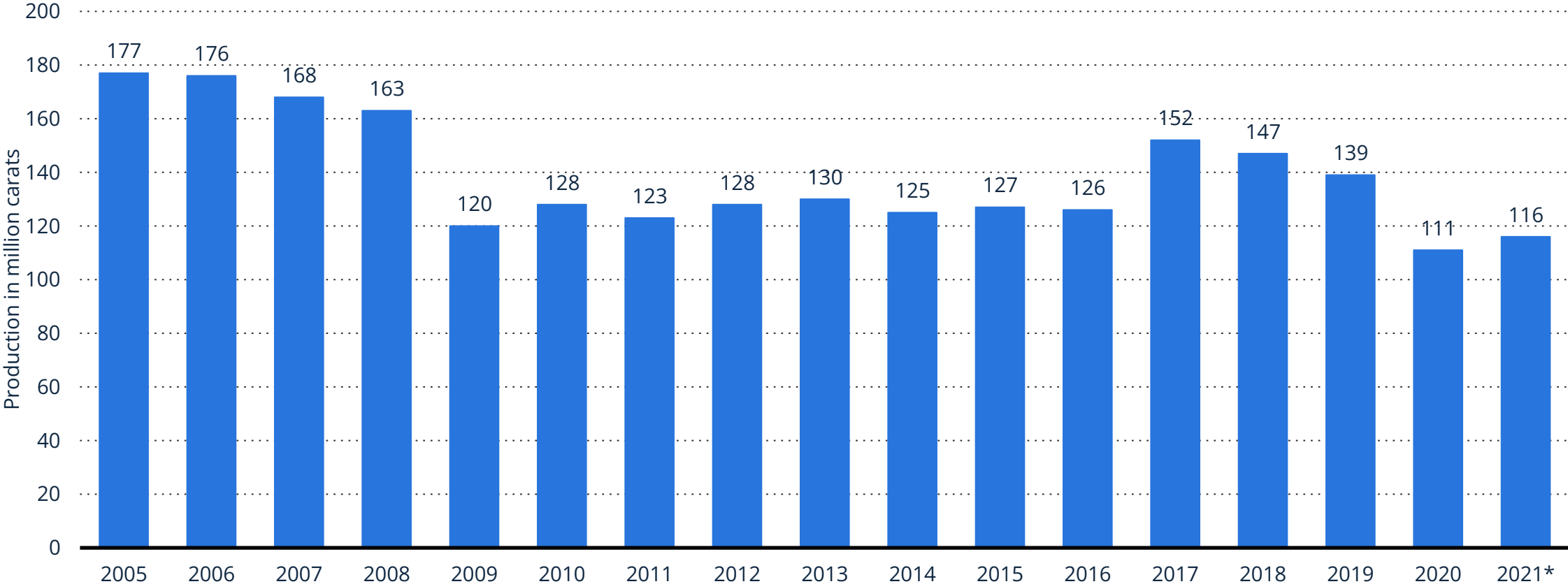
	Natural and synthetic diamonds price difference in U.S. 2023	20
<u>03</u>		
<u>04</u>	05 United States & China	
<u>05</u>	Synthetic industrial diamond production in the U.S. 2010-2021	22
<u>06</u>	Synthetic diamond production value in the U.S. 2010-2021	23
	Lab-grown diamonds U.S. specialty jeweler market share 2020-2022	24
	Synthetic diamond imports to the U.S. 2010-2021	25
<u>08</u>	Synthetic diamond import volume to the U.S. 2021, by country of origin	26
<u>09</u>	Synthetic diamond exports from the U.S. 2010-2021	27
<u>10</u>	Sales of uncut lab-grown diamonds in China 2020-2025	28
	06 Environmental footprint	
<u>12</u>	Lab-grown and mined diamonds mineral waste production volume worldwide	30
<u>13</u>	Global carbon footprint of cut and polished lab-grown diamonds 2023, by region	31
<u>14</u>	Global diamond production energy consumption 2021, by production method	32
<u>15</u>		
<u>17</u>		
<u>18</u>		
<u>19</u>		

CHAPTER 01

Natural diamond overview

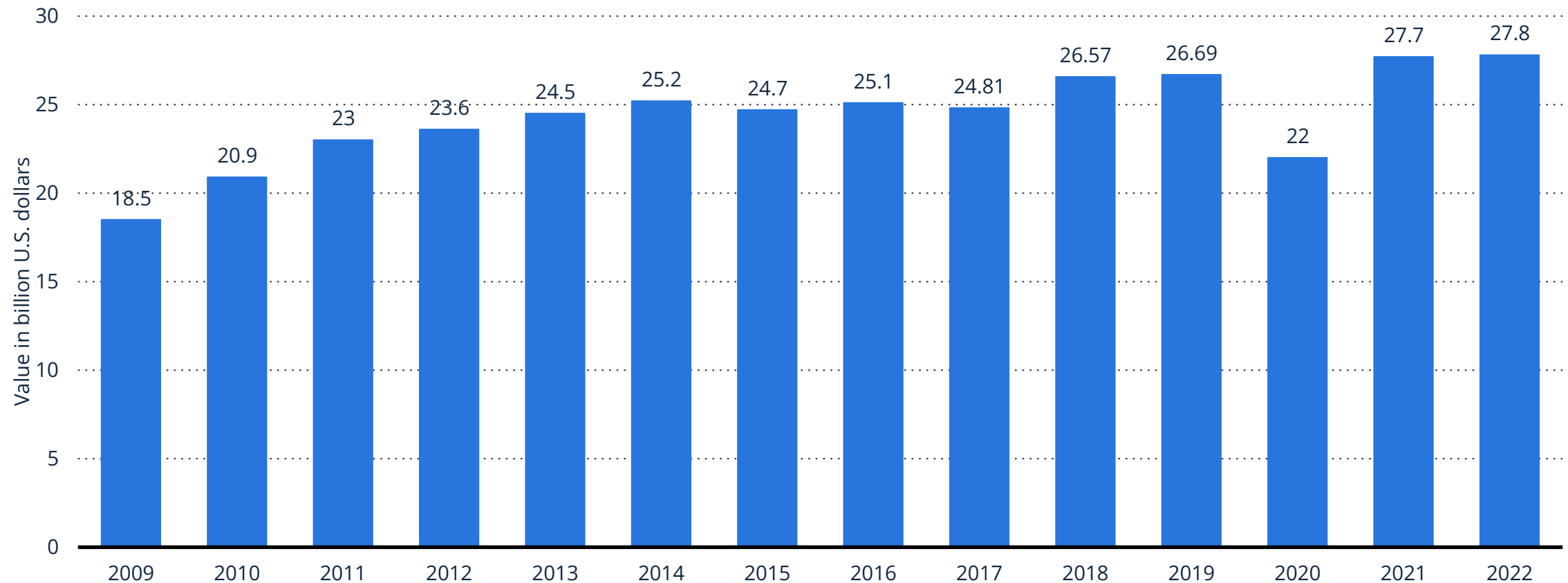
Production volume of rough diamonds worldwide from 2005 to 2021 (in million carats)

Global production volume of rough diamonds 2005-2021



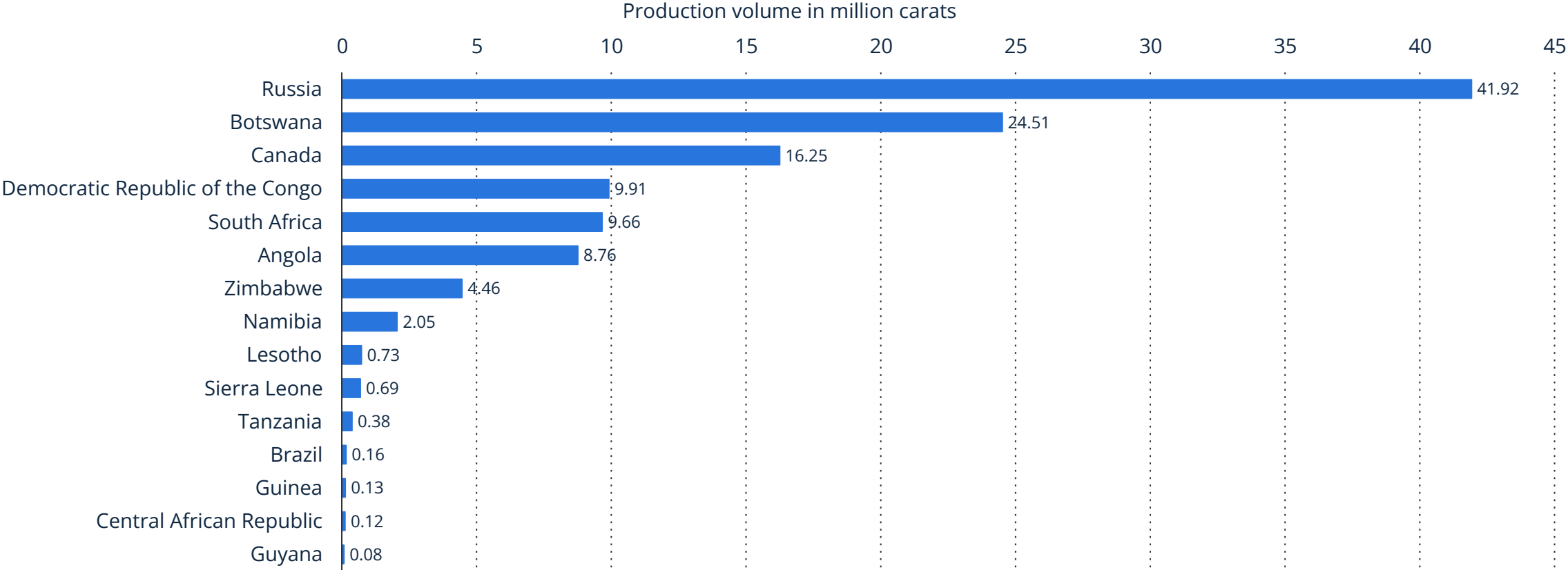
Value of polished diamonds worldwide from 2009 to 2022 (in billion U.S. dollars)

Polished diamond value worldwide 2009-2022



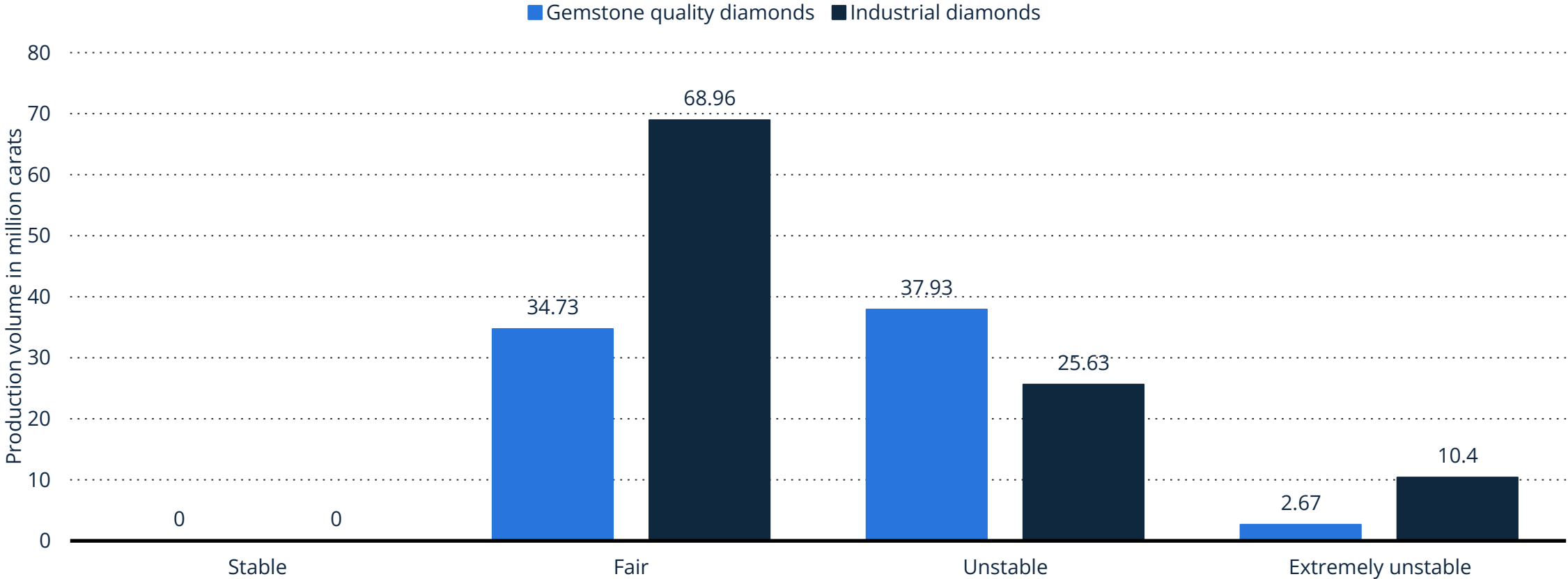
Production volume of diamonds worldwide in 2022, by country (in million carats)

Global diamond production by country 2022



Production volume of diamonds worldwide in 2021, by political stability of producer countries and type (in million carats)

Production volume of diamonds globally 2021, by political stability of producers

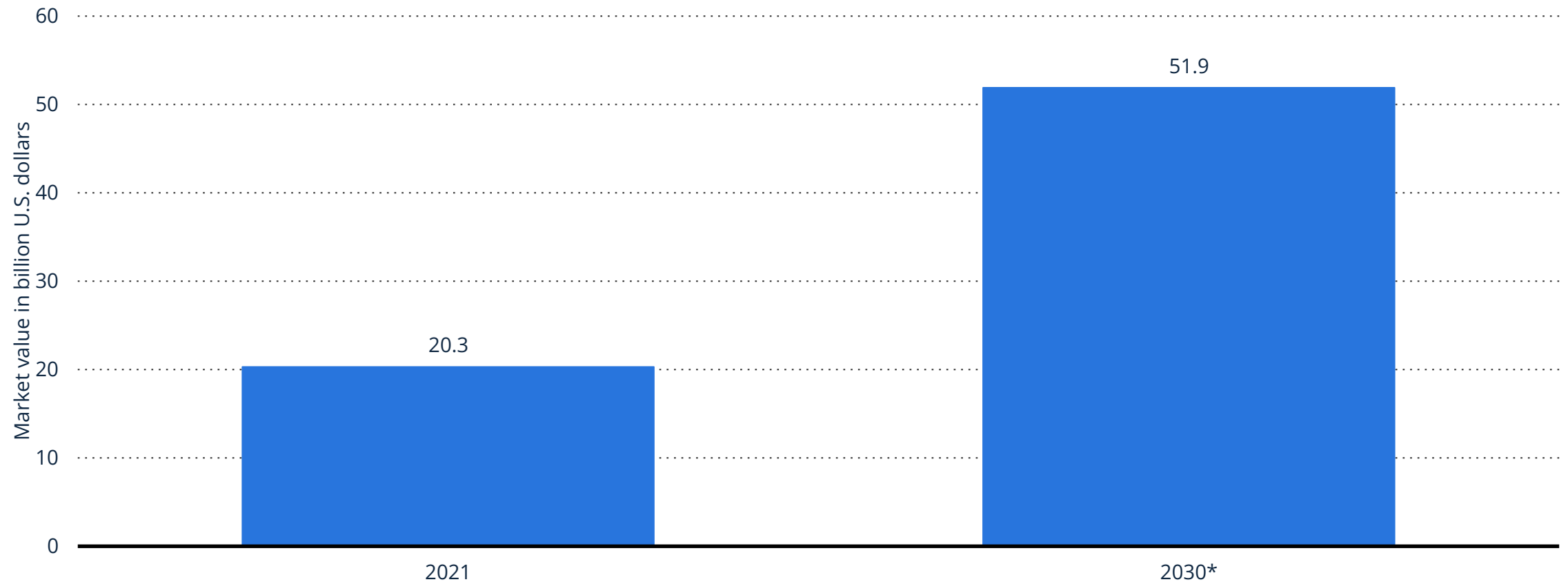


CHAPTER 02

Lab-grown diamond overview

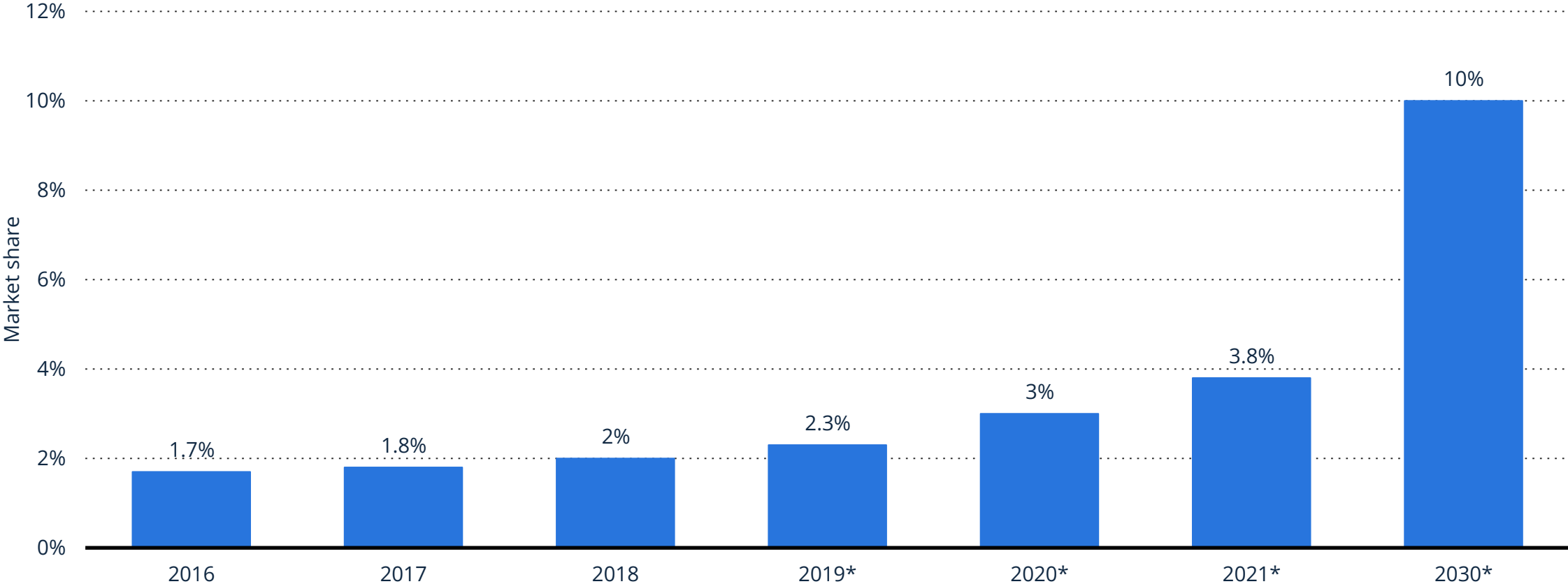
Market value of lab-grown diamonds worldwide in 2021, with a forecast for 2030 (in billion U.S. dollars)

Global market value of lab-grown diamonds 2021-2030



Diamond market share of lab-grown diamonds worldwide from 2016 to 2030

Global market share of lab-grown diamonds 2016-2030



Selected figures about lab-grown diamond production worldwide in 2020

Lab-grown diamonds selected production figures 2020

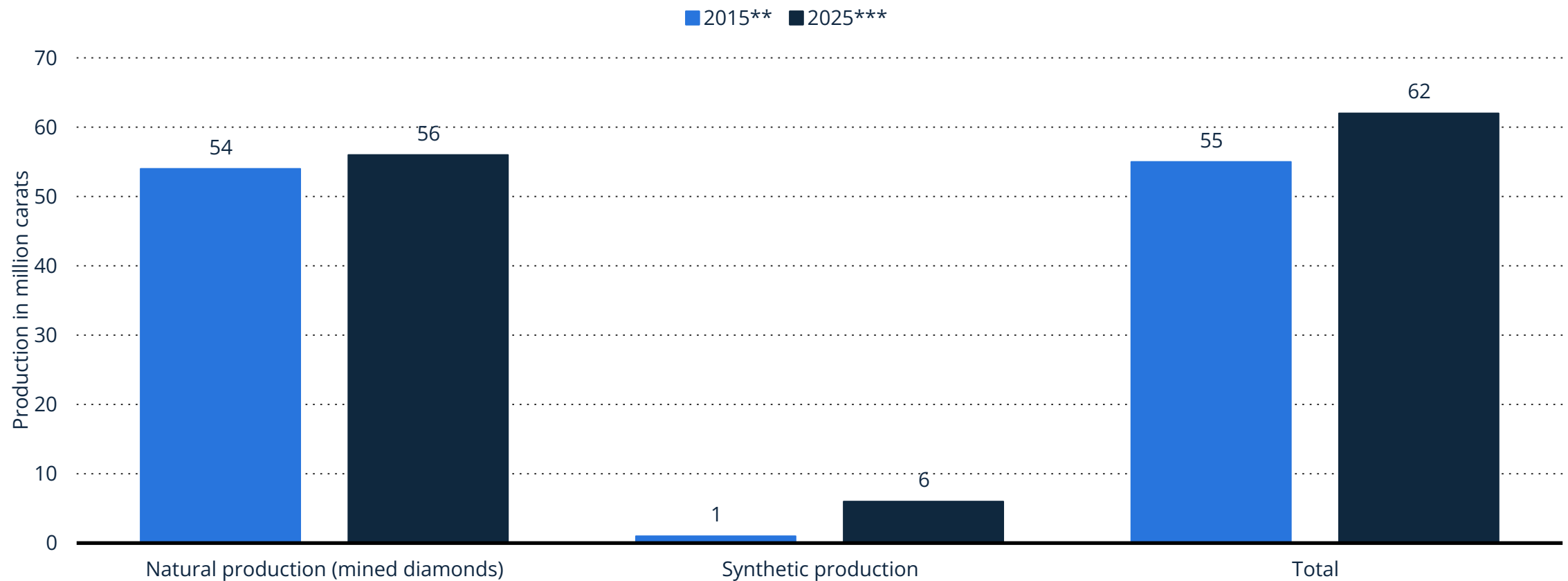
	Lower range	Upper range
Global production volume (in million carats)	6	7
China's share of global production (in percent)	50	60

CHAPTER 03

Production

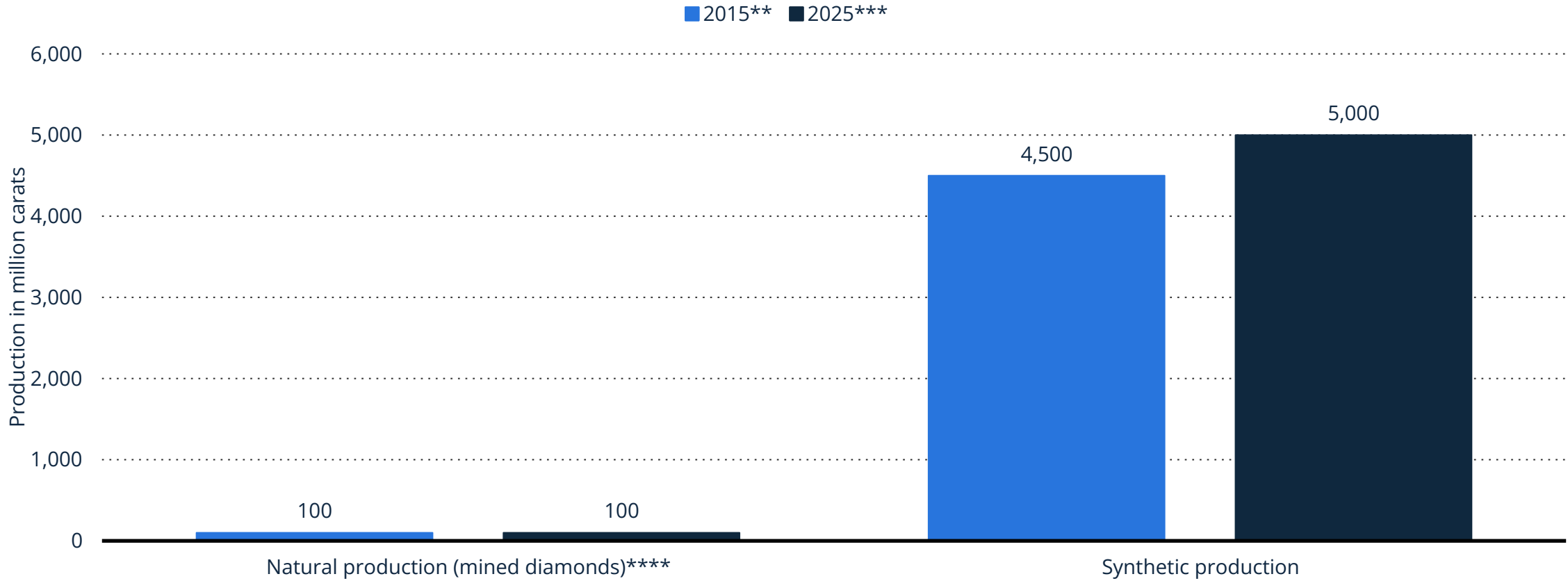
Natural and synthetic gem diamond production worldwide in 2015 and 2025 (in million carats)*

Global synthetic and natural gem diamond production 2015 & 2025



Natural and synthetic industrial diamond production worldwide in 2015 and 2025 (in million carats)*

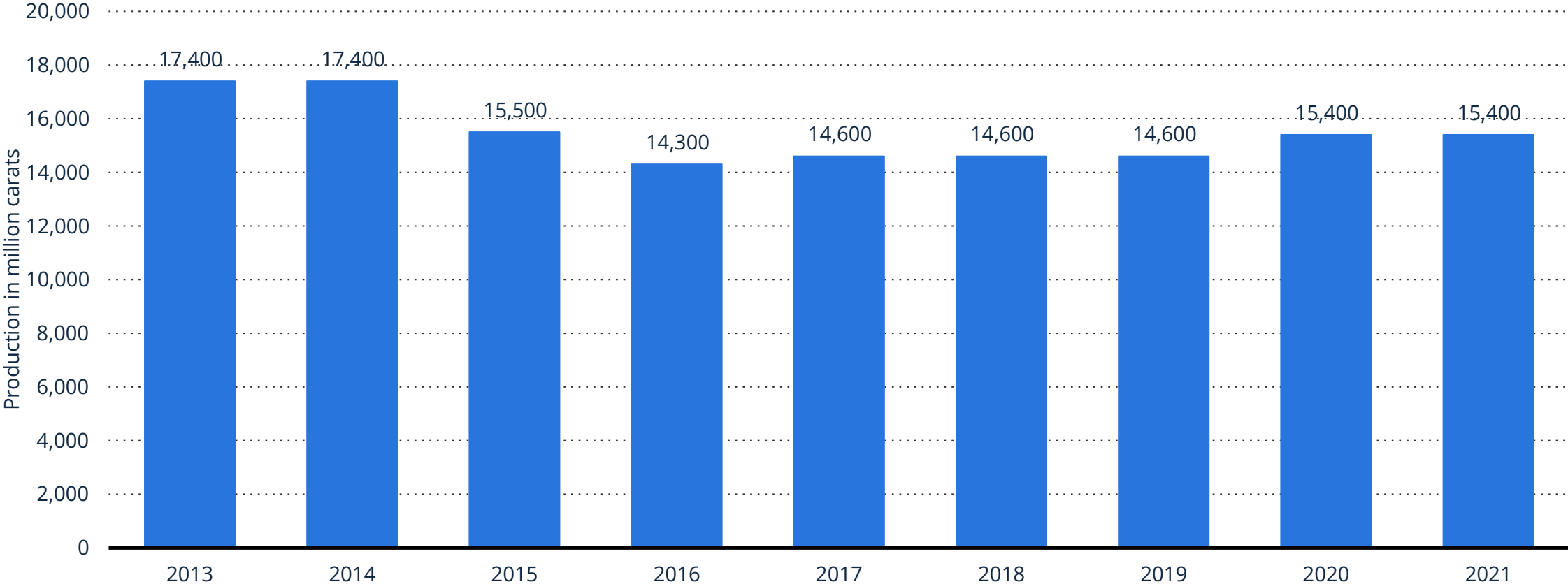
Global synthetic and natural industrial diamond production 2015 & 2025



Description: This statistic shows the estimated natural and synthetic diamond production for industrial purposes worldwide in 2015, with a forecasted figure for 2025. It is forecasted that in 2025 natural diamond production for industrial uses will be less than 100 million carats worldwide and that synthetic industrial diamond production will amount to five billion carats. [Read more](#)
Note(s): Worldwide; * Abrasive quality industrial diamonds. ** Estimated. *** Forecast. **** Less than 100 million carats. [Read more](#)
Source(s): Paul Zimnisky

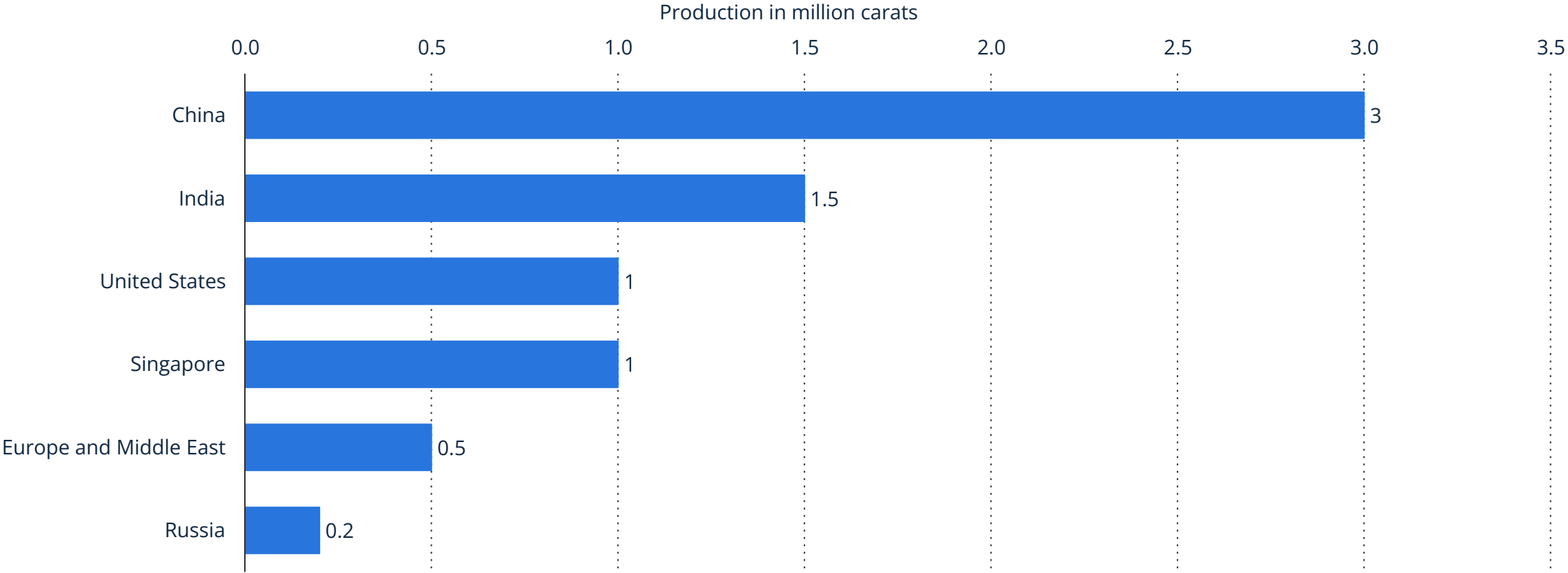
Synthetic industrial diamond production worldwide from 2013 to 2021 (in million carats)

Synthetic industrial diamond production worldwide 2013-2021



Lab-grown diamond production worldwide in 2020, by region (in million carats)

Lab-grown diamond production 2020, by world region

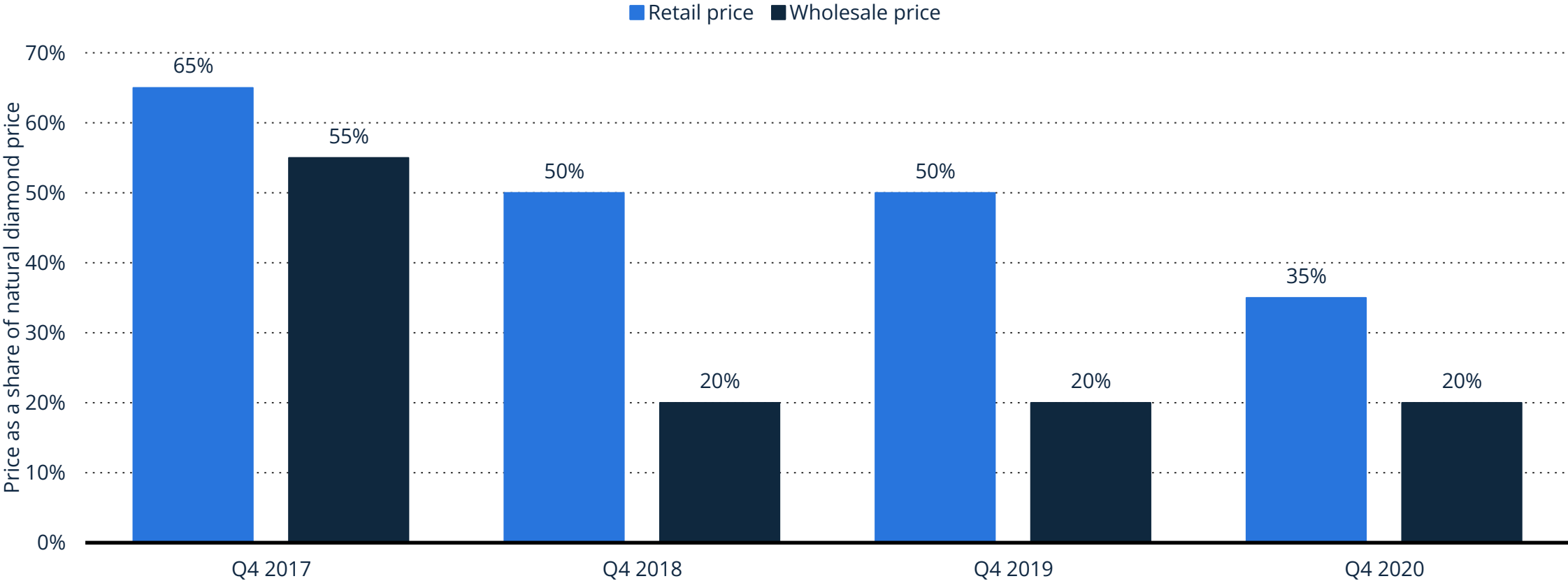


CHAPTER 04

Price

Price of lab-grown diamonds as a share of natural diamond prices from Q4 2017 to Q4 2020 by channel (in percent)

Lab-grown diamond price in proportion to natural diamonds by channel Q4 2017-Q4 2020



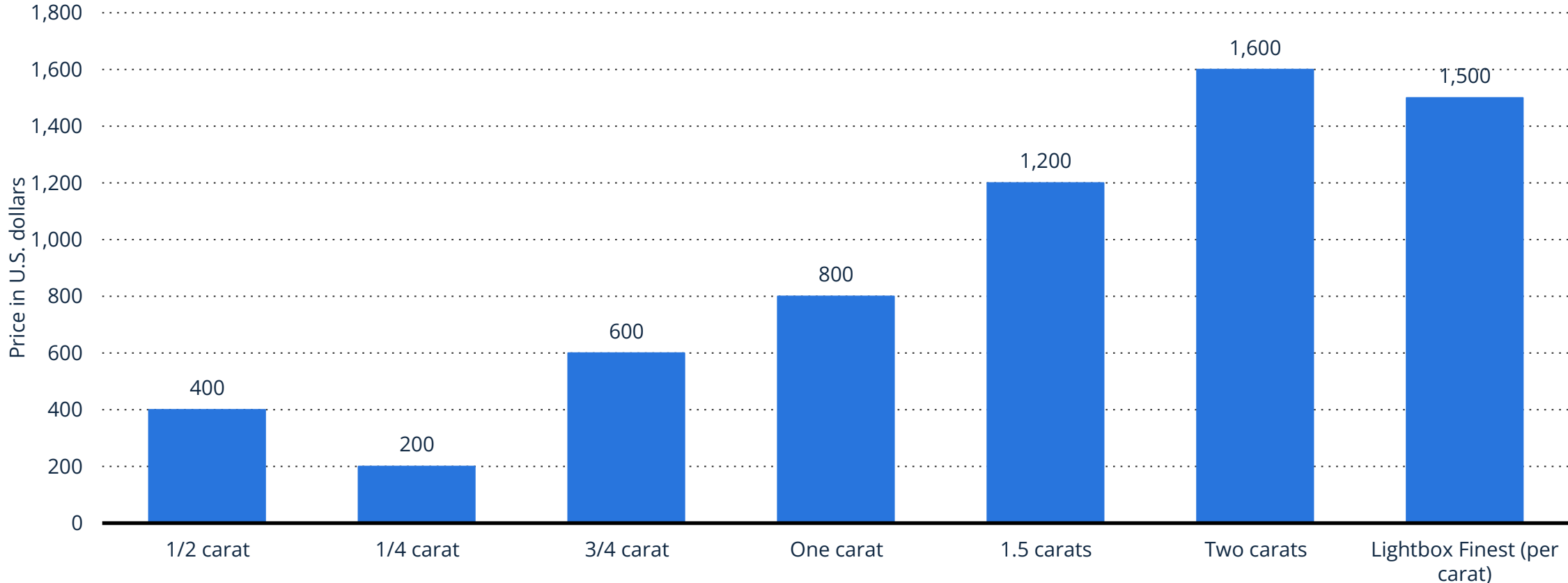
Price difference of lab-created diamonds from natural diamonds from 2016 to 2023, by weight (in U.S. dollars)

Natural and synthetic diamonds price difference 2016-2023, by weight

	Q4 2016	Q4 2017	Q4 2018	Q4 2019	Q4 2020	Q4 2021	Q4 2022	Q1 2023
0.5 carat lab	1305	1170	875	700	585	640	555	580
0.5 carat natural	1490	1425	1500	1260	1430	1390	1235	1255
1 carat lab	5250	4515	3675	2700	1945	1745	1485	1435
1 carat natural	6200	5925	6325	5626	5850	6215	5620	5635
1.5 carat lab	10600	8450	6550	4985	3740	3370	2785	2445
1.5 carat natural	12125	12050	12750	12325	12375	14225	13925	13625
3 carat lab	0	0	0	0	19950	13580	11095	9065
3.0 carat natural	0	0	0	0	63000	66750	67000	72125

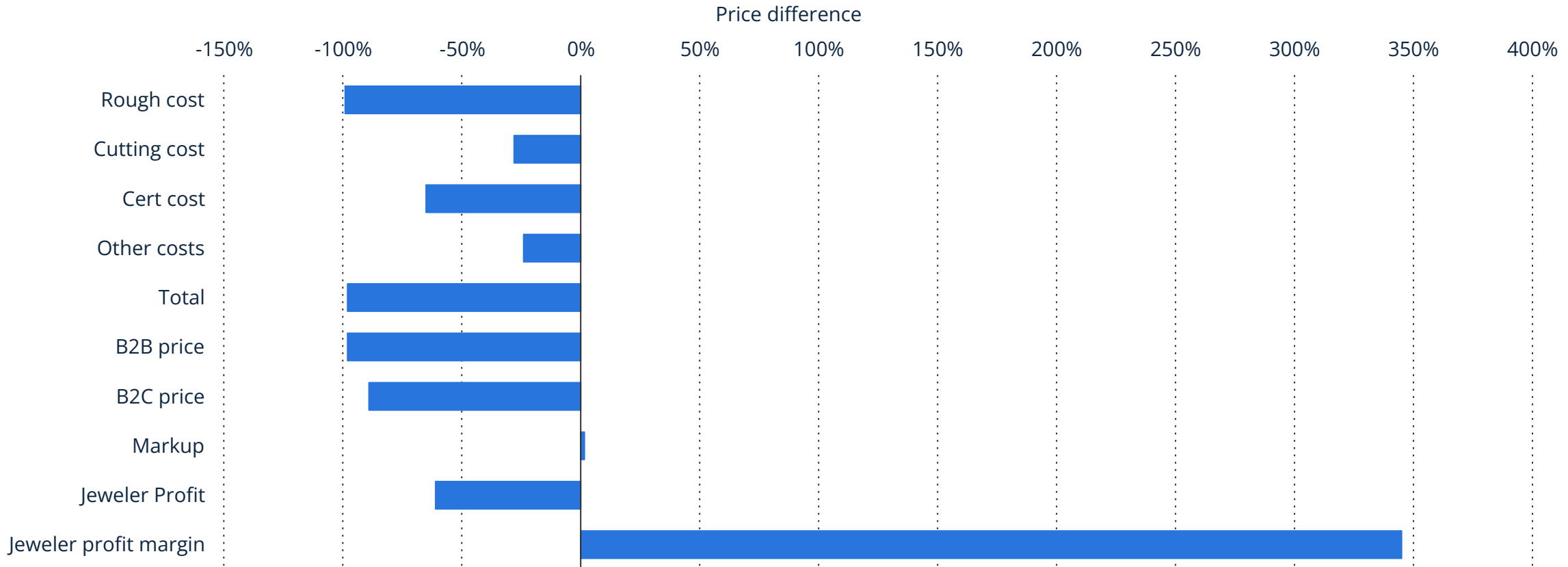
Retail price of Lightbox's lab grown diamonds as of 2023 by carat size (in U.S. dollars)

Lab grown diamond retail price of Lightbox 2023, by carat size



Price difference of lab-created diamonds from natural diamonds in the United States as of September 2023, by cost category (in percent)

Natural and synthetic diamonds price difference in U.S. 2023

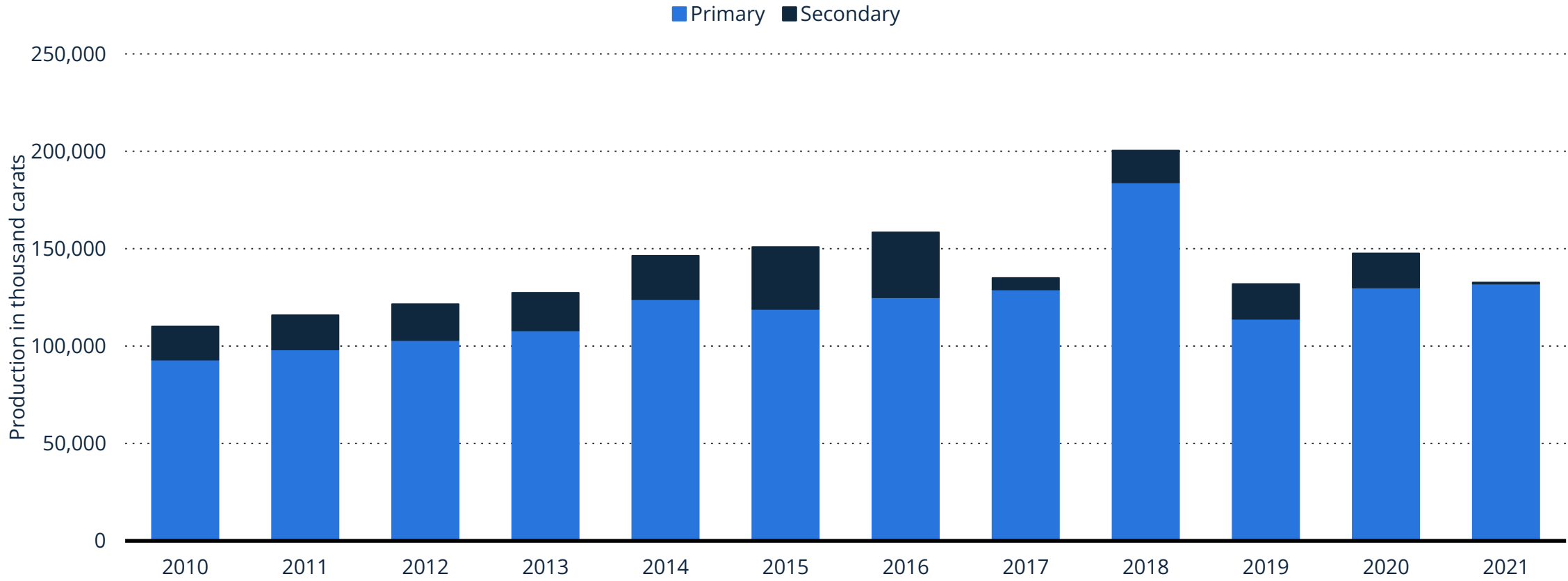


CHAPTER 05

United States & China

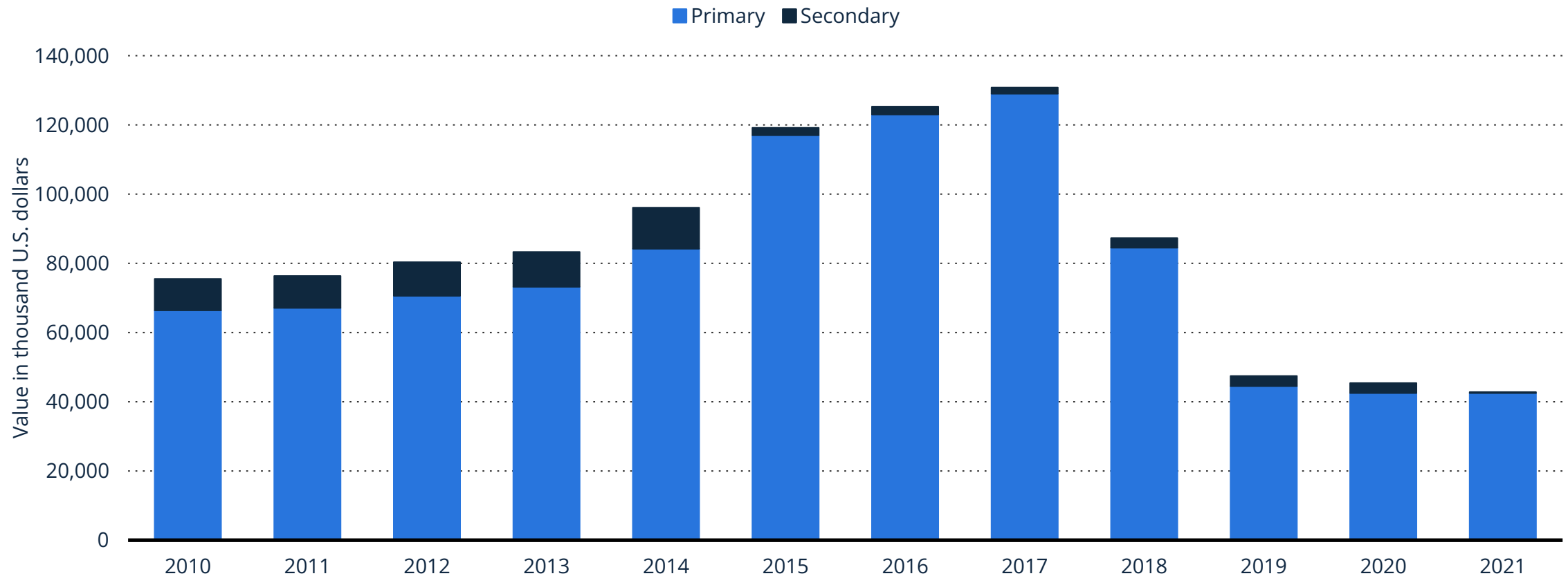
Production of synthetic industrial diamonds in the United States from 2010 to 2021 (in 1,000 carats)

Synthetic industrial diamond production in the U.S. 2010-2021



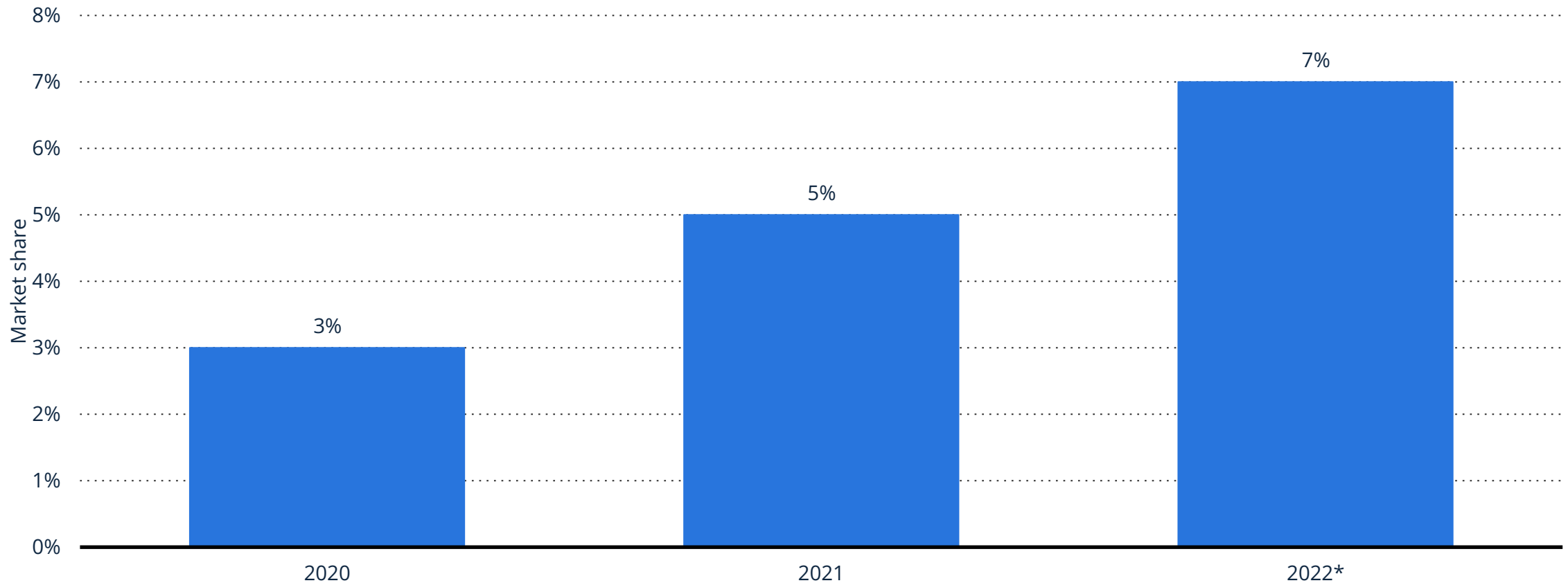
Value of synthetic diamond production in the United States from 2010 to 2021 (in 1,000 U.S. dollars)

Synthetic diamond production value in the U.S. 2010-2021



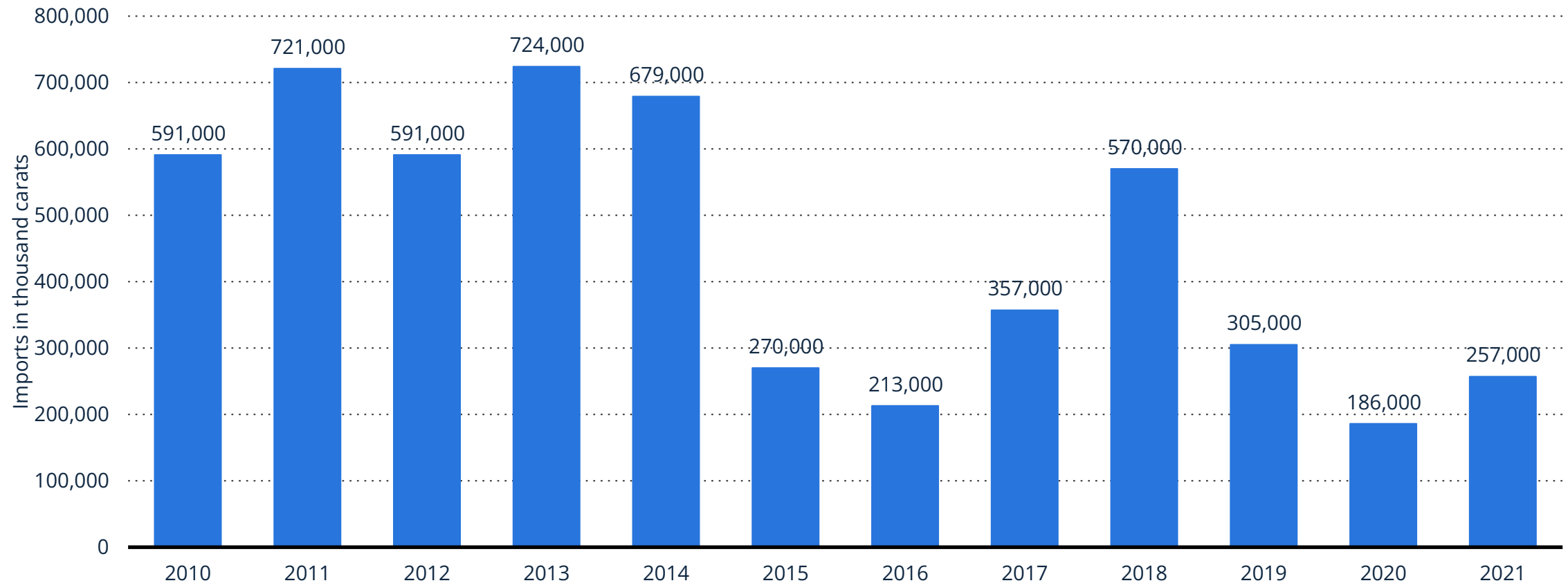
Market share of lab-grown diamonds among United States specialty jewelers from 2020 to 2022

Lab-grown diamonds U.S. specialty jeweler market share 2020-2022



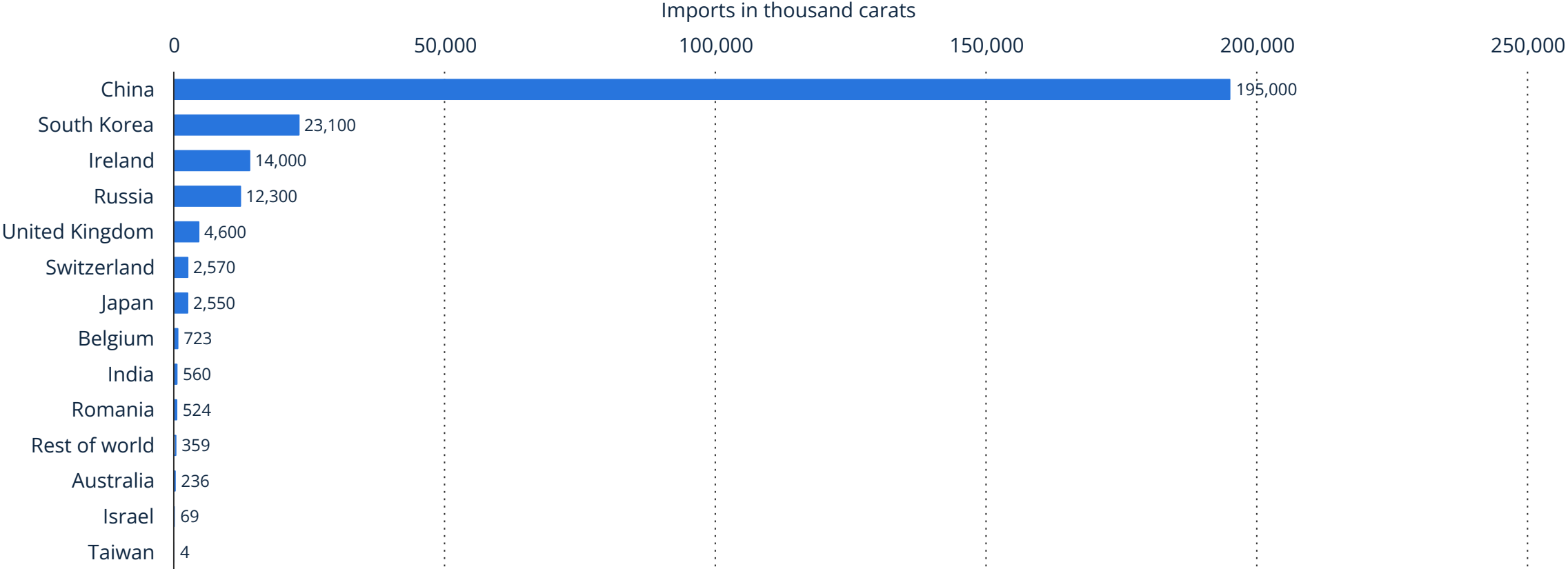
Imports of synthetic diamonds into the United States from 2010 to 2021 (in 1,000 carats)

Synthetic diamond imports to the U.S. 2010-2021



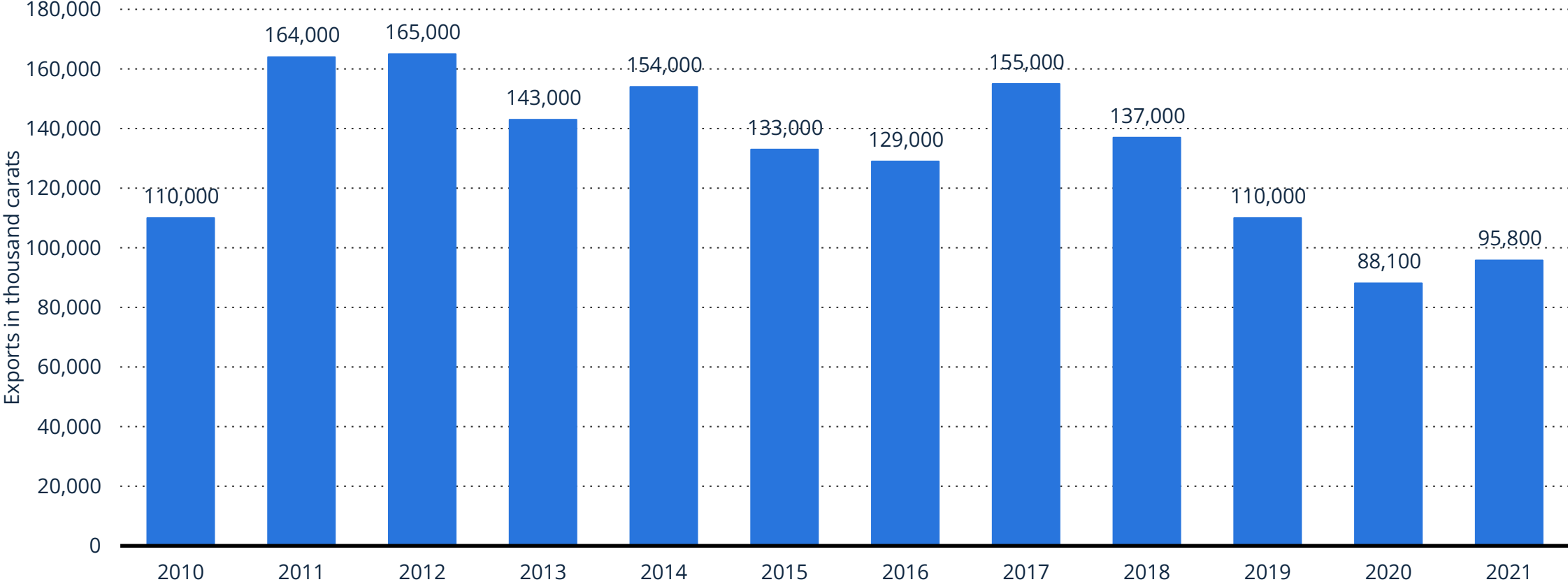
Imports of synthetic diamonds to the United States in 2021, by country of origin (in 1,000 carats)

Synthetic diamond import volume to the U.S. 2021, by country of origin



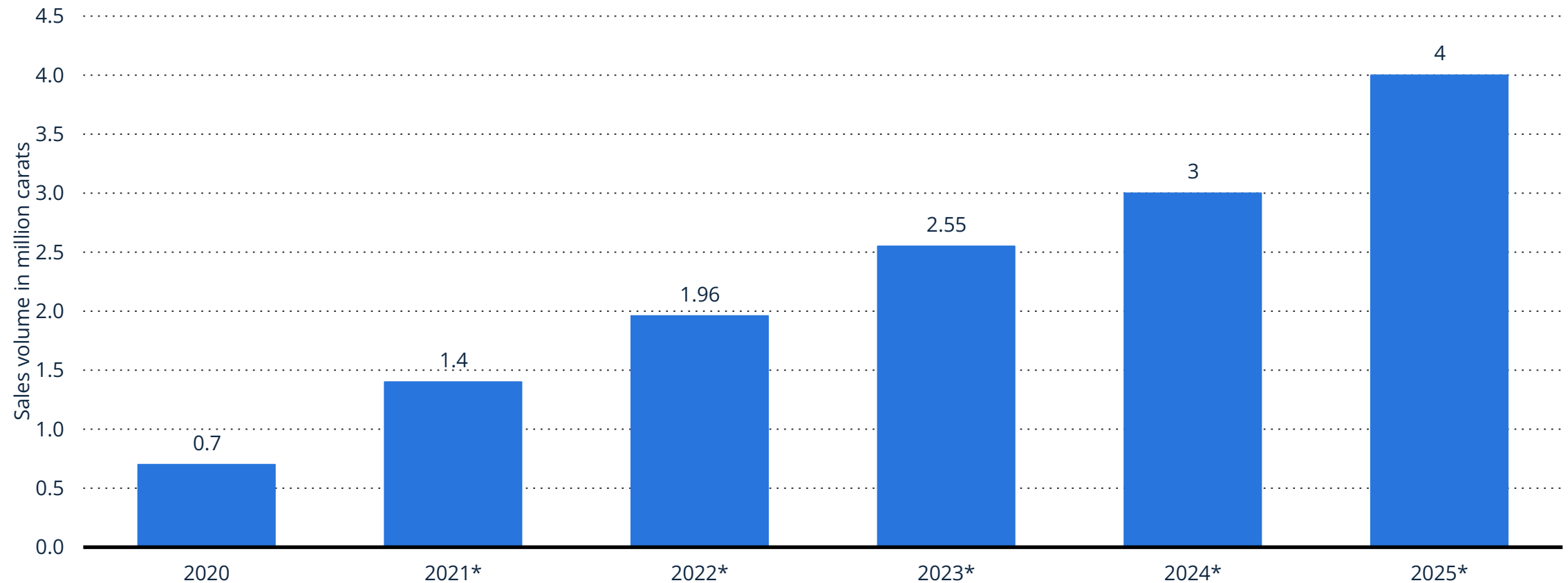
Exports of synthetic diamonds from the United States from 2010 to 2021 (in 1,000 carats)

Synthetic diamond exports from the U.S. 2010-2021



Sales volume of rough lab-grown diamonds in China in 2020 with estimates until 2025 (in million carats)

Sales of uncut lab-grown diamonds in China 2020-2025

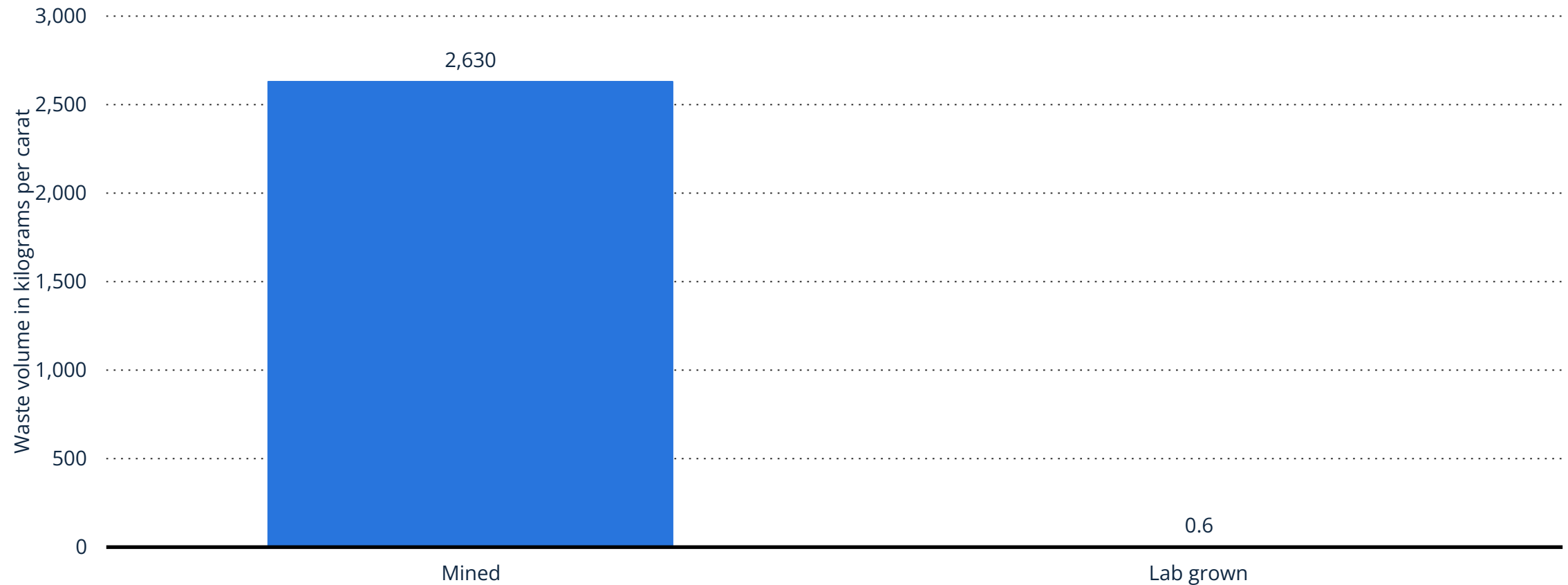


CHAPTER 06

Environmental footprint

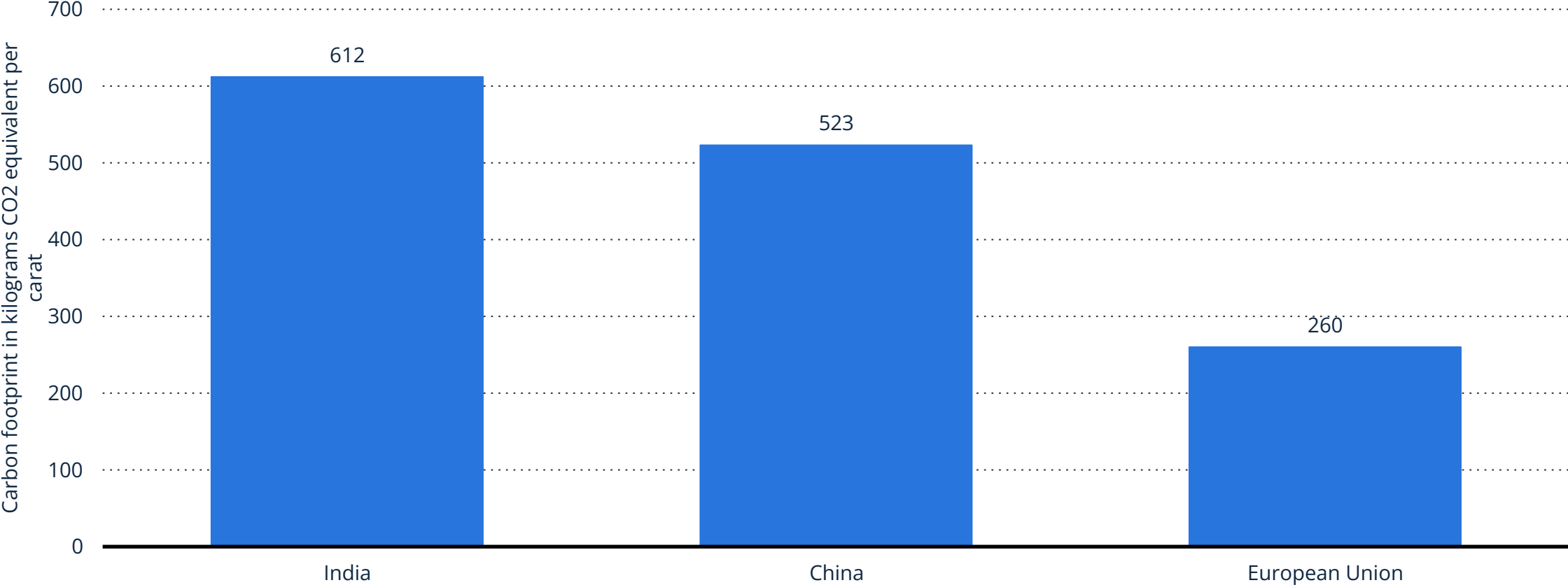
Mineral waste volume from lab-grown and mined diamond production worldwide (in kilograms per carat)

Lab-grown and mined diamonds mineral waste production volume worldwide



Carbon footprint of cut and polished lab-grown diamonds worldwide in 2023, by region (in kilograms of CO2 equivalent per carat)

Global carbon footprint of cut and polished lab-grown diamonds 2023, by region



Energy consumption of diamond production worldwide as of 2021, by production method (in kilowatt hours per carat)

Global diamond production energy consumption 2021, by production method

Production method	Lower range	Upper range
HPHT*	28	245
MPCVD**	77	143
Mining	96	150

Sources

Alicat Scientific
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AWDC
Bain & Company
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De Beers
Diamonds.net
Eastmoney.com
Edahn Golan Diamond Research & Data
Frost & Sullivan
IGDA
Intelligence Research Group
Kimberley Process
Lightbox
MarkWide Research
MDPI (Energies)
Only Natural Diamonds
Paul Zimnisky
Sphera
Sports Illustrated
Thomson Reuters
US Geological Survey

Various sources (company data, expert interviews, publication analysis)
Various sources (company data, experts)
Various sources (Retailers' websites)