

# Highly Enriched Uranium around the World

(Data: End of 2018)

Click on a country to see details of each.

Country	Military Use (ton)	Non-military Use (ton)
<a href="#">Russia</a>	670.0	9.0
<a href="#">US</a>	480.0	85.1
<a href="#">France</a>	25.0	5.1
<a href="#">China</a>	14.0	0.2
<a href="#">UK</a>	21.9	0.7
<a href="#">Israel</a>	0.3	0.0
<a href="#">Pakistan</a>	3.7	0.0
<a href="#">India</a>	4.4	0.0
<a href="#">North Korea</a>	0.5	
<a href="#">Non-nuclear Weapon Countries</a>		15.0
<b>Total</b>	<b>1,220</b>	<b>115</b>

**Military:** HEU used in nuclear warheads or stored for use in weapons; HEU used in reactor fuel for naval nuclear propulsion (including spent fuel)

**Non-military:** HEU used in fuel for research and testing reactors; HEU declared as surplus for military purposes.

The stockpile of fissile materials includes estimated ones with large uncertainties and thus total quantities are expressed in rounded numbers.

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## 【Source】

**International Panel on Fissile Materials (IPFM)**, "Fissile Material Stocks", May 2020, <http://fissilematerials.org/>

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<https://www.iaea.org/sites/default/files/publications/documents/infcircs/1998/infcirc549a5-23.pdf>

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**Communication Received from China Concerning its Policies Regarding the Management of Plutonium**  
(INFCIRC/549/Add.7-16). 18 October 2017.

<https://www.iaea.org/sites/default/files/publications/documents/infcircs/1998/infcirc549a7-16.pdf>

**Communication Received from the United Kingdom Concerning its Policies Regarding the Management of Plutonium**  
(INFCIRC/549/Add.8-22), 23 October 2019.

<https://www.iaea.org/sites/default/files/publications/documents/infcircs/1998/infcirc549a8-22.pdf>

**Communication Received from the Russian Federation Concerning its Policies Regarding the Management of Plutonium**  
(INFCIRC/549/Add.9-21), 5 November 2019.

<https://www.iaea.org/sites/default/files/publications/documents/infcircs/1998/infcirc549a9-21.pdf>

【Detail】

Country	Military Use (ton)	Non-military Use (ton)
Russia	670.0	9.0
	<p>Production was started in 1949 but appears to have been halted around 1987 to 1988. It was officially announced that production had been halted in 1989. The cumulative production amount of highly-enriched uranium (HEU) is estimated to be 1,130-1,370 tons. Subsequently 500 tons obtained from the dismantling of nuclear weapons was diluted into low enriched uranium by 2013 in line with a 1993 agreement with the US. A further 16 tons was diluted under a separate program.</p> <p>As a result, it is estimated that Russia has 550-790 tons of military use uranium. Of this, 20 tons is fuel for reactors on nuclear-powered ships. There is also a very small amount used as fuel in military research reactors.</p>	<p>Fuel for naval ice-breaker reactors, and civilian research reactors. There are four uranium enrichment plants. The stockpile of 90% HEU is equal to 6 tons.</p>
US	480.0	85.1
	<p>The US finished production of HEU for nuclear weapons in 1962 and the production of fuel for nuclear-powered ships in 1992. The total amount produced is about 850 tons (excluding that recycled on nuclear-powered ships). So far, more than 150 tons has been diluted. According to figures released on March 31, 2016, including non-military use uranium as of the end of September 2013 the total US inventory was 585.6 tons (of which 499.4 tons was for use, 41.6 tons has been diluted and 41.6 tons was in spent fuel slated for disposal). From 2013 to 2018 a further 17 tons has been diluted (mainly as fuel for nuclear vessels).</p>	<p>16 tons is for research reactors. 69 tons has been declared a surplus from military use and will be diluted in the future. The US has one large uranium enrichment plant.</p>
France	25.0	5.1
	<p>Production was halted in 1996. The total amount produced thus far has not been made public. 5 tons to 7 tons has been used for tritium production in reactors, 2 tons to 4 tons in nuclear tests, and the current stockpile is between 19 tons and 31 tons.</p>	<p>The figure is as announced on August 23, 2019. France has one uranium enrichment plant.</p>
China	14.0	0.2
	<p>China has two uranium enrichment plants, and it is thought that these stopped military production in 1980 and 1987 respectively. The latest estimate of cumulative production is 13-19 tons. Of this, 0.5 tons are in research reactors, and 0.85 tons were used in nuclear testing. The current stockpile is 11-17 tons.</p>	<p>At least 240kg of uranium enriched to 60% has been provided by Russia for fast reactor fuel, but this has not been made public. There is one domestic production plant, and two centrifugal separation plants imported from Russia.</p>

UK	21.9	0.7
<p>The cumulative production of HEU in the UK is 9-13 tons. The amount of HEU provided by the US is 14-16 tons. In total, the UK got around 25 tons by 2002. The UK announced it had 21.86 tons on March 31, 2002. In 1995, the UK announced that it stopped the production of nuclear material for military use. After that, 3.3 tons were used as fuel for nuclear vessels and 0.7 tons for research. Then 0.7 tons were used.</p> <p>The stockpile figure is published on August 28, 2019, and the material is mainly used in research reactors. The UK has one large-scale uranium enrichment plant.</p>		
Israel	0.3	0.0
<p>There is information that Israel secretly obtained several hundred kilograms of HEU from a US factory producing fuel for nuclear-powered ships.</p> <p>The US has provided 34kg, of which 12kg has been returned.</p>		
Pakistan	3.7	0.0
<p>Pakistan started production of HEU in 1974. It appears that they stole technology from the URENCO factory in the Netherlands. There is also information that they obtained 50 kg of HEU from China. It appears that Pakistan has produced a total of around 3 tons, but the exact details are unclear. Production appears to be still underway. The current estimated inventory is 3.3-4.1 tons.</p> <p>Provided by the US.</p>		
India	4.4	0.0
<p>India is currently producing HEU, and has 2.9-5.9 tons of 30% enriched uranium, equivalent to 1.0-2.0 tons of 90% enriched uranium.</p> <p>Provided by former Soviet Union.</p>		
North Korea	0.5	
<p>According to an estimate (Hippel, 2019), the amount produced by the end of 2017 was 300-750kg. Assuming that 50-100kg of this has been used in nuclear testing, the current inventory is 250-650kg.</p>		

Non-nuclear Weapon Countries		15.0
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According to NTI (November, 2018)

Kazakhstan	10.43~10.78
Japan	1.75
Germany	1.27
Canada	1.038
Netherlands	0.55~0.65
Belgium	0.70~0.727
South Africa	0.70~0.75
Italy	0.100~0.119
Belarus	0.08~0.28
Iran	0.006
Norway	0.001~0.009
Australia	0.002
Syria	0.001

Total	1,220	115
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