

Fissile Material - Important Facts

1. It is a material that sustains nuclear fission chain reaction.
2. Fissile materials are used in Nuclear explosive devices or nuclear weapons, fast-neutron reactors and thermal neutron-reactors.
3. In Nuclear Physics, any element with an atomic nucleus that undergoes a fission reaction are called fissile materials.

Fissile Material - Examples

The examples of Fissile materials are given below.

1. Uranium - 235
2. Plutonium - 239 artificially produced from fertile materials Uranium- 238
3. Uranium - 233 artificially produced from fertile material Thorium - 232

Fertile materials are not fissionable by thermal neutrons but it can be converted into fissile material by neutron transmutation and subsequent nuclear decay. The process of transmutation of fertile materials into fissile materials is referred to as fuel breeding.

Fissile Material Stockpile

As of January 2017, it is estimated that the global stockpile of Highly Enriched Uranium is approximately 1400 tons. As per some reports it is estimated the global stockpile of separated Plutonium is approximately 520 tons. Of this around 290 tons are for civilian purpose and the rest are for military purpose. The countries in possession of the highest amount of fissile materials are listed below.

1. Russia
2. USA
3. UK
4. France
5. China

Fissile Material Cutoff Treaty (FMCT)

1. It is a proposed international treaty to prohibit further production of fissile material which would be used for nuclear weapons and nuclear devices.
2. US proposed to include fissile materials - highly enriched uranium and plutonium
3. Russia proposed to include fissile materials - weapons grade uranium and plutonium

4. Both countries were of consensus that production of fissile material that would be used in civilian nuclear reactors or nuclear reactors that are used to power Navy ships and submarines would not be prohibited.

Top Uranium Producing Countries

As per World Nuclear Association 2018 report, the top 5 Uranium producing countries are listed below.

1. Kazakhstan
2. Canada
3. Australia
4. Namibia
5. Niger

Countries with Highest Uranium Reserves

As per the joint report generated by International Atomic Energy Agency (IAEA) and OECD (Organisation for Economic Cooperation and Development) Nuclear Energy Agency the countries having the highest recoverable uranium reserves are listed below.

1. Australia
2. Kazakhstan
3. Canada
4. Namibia
5. Niger

United Nations Institute for Disarmament Research (UNIDR)

It was established in 1980 by the United Nations General Assembly. It is headquartered in Geneva, Switzerland. It conducts research on the following areas.

1. Weapons of Mass Destruction and Other Strategic Weapons.
2. Conventional Arms
3. New Weapon Technologies
4. Gender and Disarmament