



Fire Status and Environmental Protection Fire Extinction Solutions

[Beijing World Joy Technology Co., Ltd.] R&D patent





Forest and Residence Fire Current Status



Forest and Residence Fire Current Status



More than 200,000 fires take place worldwide every year, burning down 1% of the world's total forest areas.

In China, 10,000+ fires are reported every year destroying tens of millions of hectares or 5-8% of the total forest areas.

Wildfires in China are 5-8 times as destructive as the world's average.

Case Study: the 2019 Australian bushfire resulted in the burning of nearly 1 billion wild animals including 20,000+ koalas, the emission of more than 500 million tons of carbon dioxide and the destruction of nearly 5.9 million hectares of land. As a result, this resource rich tourist resort immediately resulted in shocking ruins with immeasurable loss.

- The destruction of forest structure will take decades to repair. The areas swept by the fire are likely to lead not only to debris flow, landslide, sandstorm and other natural disasters but also the destruction of the living environment for animals and seriously threaten the survival of human beings.
- The harmful gas emitted has accelerated the process of global warming, leading to the increase of grass and shrubs on Mount Everest, which belongs to the alpine zone in China. If this glacier melts it will directly affect more than 1.4 billion people who depend on the water sources. The vision of Mount Everest is a warning to people all over the world: bushfire can not be ignored!

Forest and Residence Fire Current Status



In 2019, there were 233,000 fire cases reported in China which caused 1,335 deaths, 837 injuries and direct property loss of RMB 3.6 billion. The Chinese Fire and Rescue Bureau announced that urban and rural household fires accounted for **44.8%** of the total cases, causing **1,045 deaths**, constituting **78.3%** of the total, far exceeding the total number of deaths in other places.

Forest and Residence Fire Current Status

Main Firefighting Methods

1. Fire trucks

2. Aerial firefighting

3. Chemical agents

4. Create isolated areas



Analysis on Current Firefighting Situation



Poor Control

Large-scale bushfires in China are hard to contain and destroy million hectares of forests every year.



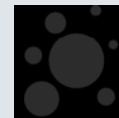
Poor Efficiency

Water is the leading force for firefighting worldwide to be supplemented only by chemical agents. Uneven dousing hardly helps to put out fire, particularly in frigid zones where water is frozen and hence useless.



Poor Mobility

Topography makes water bombers and fire engines dysfunctional for some bushfires.



Pollutant Ingredients

Chemical extinguishing agents could increase efficiency but the damage caused to the environment cannot be ignored. In 1987 a huge amount of foam extinguishers wiped out all fishes in the affected rivers in Switzerland.



Poor safety

All existing firefighting solutions require firefighters to approach the blaze which could easily cause casualties.



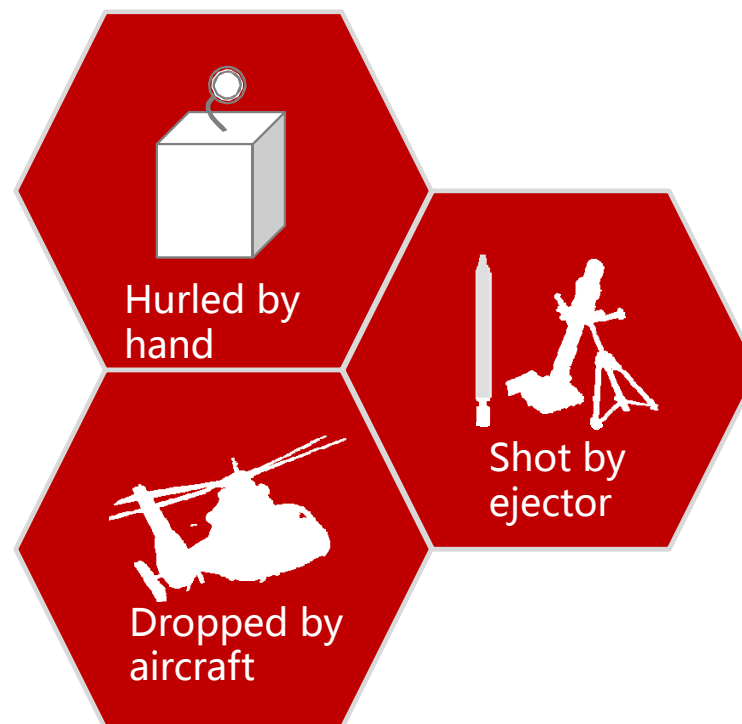
Beijing World Joy Technology Co., Ltd.
Environmental Protection Fire Extinguishing
Solution



World Joy's new environmental protection fire extinguisher devices: in response to fire protection requirements and the deficiencies of the current fire protection status

World Joy's New devices

- 1** Researched and developed 3 types of fire extinguishing methods for the current forest fire protection
- 2** All complied with the national fire extinguisher standards
- 3** Recommended by the National Forest Professional Committee
- 4** World Joy is the first and only certified company to enter the procurement directory of the National Forest Professional Committee



Beijing World Joy Technology Co., Ltd. (World Joy) was founded in 2012. Today it manages R&D, production, sales, training, services and has been committed to scientific and technological R&D and innovation in the fire rescue area.

Led by Mr. Zeng Shaowen (founder and chairman) based in the historic world-famous fireworks town Liuyang in Hunan province, the R&D team has worked tirelessly for 10 years, boldly tried and persevered, tackled key problems with "serve the people" as the initial intention, with "integrity and innovation" as the belief.

The team has successfully transformed World Joy from a traditional fireworks manufacturing enterprise into a scientific and technological innovative fire product manufacturing enterprise.

The World Joy fire bomb is the key product of the company. It is applicable to all sectors including industries, agriculture, transportation, military and construction. It can be widely used for fire extinguishing in forests, grasslands, oil fields, ports, mines, factories, warehouses, various means of transportation tools and buildings. It has the advantages of high fire extinguishing efficiency, safety, no harm, green and environmental protection, easy to carry. It is another sublimation of gunpowder technology and a new fire extinguishing technology with subversive significance in the field of fire protection area.

After 10 years of R&D and exploration, World Joy has accumulated a solid technical foundation through tens of thousands of tests. It has obtained 35 national patent certificates, numerous national and Hunan provincial science and technology awards as well as several EU CE and ISO certifications. Most importantly, it has passed the technical evaluation and testing of fire products by China's Ministry of Emergency Management.

World Joy also pays attention to the improvement of production facilities and processes and has indeed invested hundreds of millions to build a modern production base. To date, our production base covers a total area of more than 666,667 sq.m. and rolls out more than 100,000 fire bombs daily, with safety, efficiency, green and recycling as its production goal.

World Joy is determined to take a professional, brand and scientific development road. It will strive to become a comprehensive solution provider if not leader in the field of fire rescue. Whilst its business radiates the Chinese domestic market, it will connect with the international market for purposes of creating positive contributions to fire prevention and disaster reduction and the protection of global life and property safety.

SUPPLY CHAIN



Fire Bomb Production and R&D Base:

Our production base covers a total area of more than 666,667 sq.m. which includes R&D buildings and the 20+ research team, large scale experimental fields, meeting rooms and is a leading firefighting player in China.



Beijing Shunyi Fire Drill Base:

The site is a large-scale exercise area with a variety of fire scenes, which can also at the same time accommodate thousands of people to watch the drill for purposes of sharing the experience of the fire extinguishing effect with the visitors and verifying at the same time the actual combat effect of the product.



Marketing Center:

Fire protection awareness abroad is high, the fire protection industry is relatively mature and the demand for efficient fire extinguishing products is increasing. World Joy's fire device is heading abroad where it will soon establish marketing centers for purposes of completing the expansion of foreign trade.

Milestones



Fire extinguisher device products obtained 4 patent certificates in 2014.



The fire extinguisher device was rated as “the leading domestic product” recognized by the scientific and technological achievements of the expert group of the Hunan Provincial Science and Technology Department in Nov 2018.



In Jan 2020, World Joy cooperated with the national fire protection product inspection department to complete the secondary injury test of the product.



It passed the EU CE test, obtained the Madrid International Trademark Certification and passed the inspection of the National Fire Products Quality Supervision and Inspection Center (Guangdong) in Dec 2020.



In August 2021 World Joy passed the product technical appraisal of China's Ministry of Emergency Management.



Under the leadership of the founder Mr. Zeng Shaowen, in 2012 the company prepared and incubated, continuously developed and tested fire-fighting bomb products and improved intellectual property protection.



World Joy Security & Safety Technology was officially registered and established in Apr 2018 with a registered capital of RMB 21.68 million and a sophisticated R&D team of more than 30 members.



In Jan 2019, the State Intellectual Property Office issued a patent certificate for a new type of practical product for the new type of environmental protection of the fire extinguisher device.



In Jun 2020, the new type of environmental protection fire extinguisher device was recommended as an emergency rescue product by the Ministry of Industry and Information Technology.



It has obtained the ISO9001 international standard system certificates in May 2021.

World Joy's Fire Device



World Joy's fire bomb broke the decades old history of traditional fire extinguishers dominating the market and filled some deficiencies and gaps in fire-fighting means over the years.

With high recognitions by experts, World Joy has obtained various EU CE certifications, ISO9001 international standard system certifications, 35 China's national patents and a number of national science and technology awards.

We currently have 9 product models which can meet the prevention, control and rescue of various fires in different scenarios, such as mountains, forests, grasslands, oil fields, power plants, warehouses, docks, various dangerous vehicles and high-rise buildings. In terms of safety, effectiveness and environmental protection, our product has been widely praised and unanimously recognized.

Our products are easy to operate and convenient to carry and also can be preset and deployed in key areas. The innovative fire extinguishing principle, double insurance setting, environmental protection packaging materials, and ultra-fine fire extinguishing dry powder are all pioneers in China and spearheading the world. It will generate beneficial social results for future fire prevention and control.

Products List



Hurl pull-ring devices

Model: M1000 - 10 Size: 88 * 88 * 167 (mm)
 Fire extinguishing area: 3 - 5 m² Weight: 1 kg
 Packaging scale: 6 pieces / Box Appropriate site: for civil use
 Ignition model: Pull-ring / Self-ignite
 Executive standard: CE / Directive 2013 / 29 / EU



Hurl pull-ring devices

Model: S2000 - 20 Size: 88 * 88 * 168 (mm)
 Fire extinguishing area: 6 - 9 m² Weight: 2 kg
 Packaging scale: 4 pieces / Box Appropriate site: for civil use
 Ignition model: Remote / Self-ignite
 Executive standard: CE / Directive 2013 / 29 / EU



Insulation devices

Model: S20 - 70 Size: 350 * 350 * 300 (mm)
 Fire extinguishing area: 50 - 60 m² Weight: 20 kg
 Packaging scale: 1 piece / Box
 Ignition model: Remote / Self-ignite / Air-drop
 Executive standard: CE / Directive 2013 / 29 / EU
 Appropriate site: for bushfire, chemical plants, oil fields etc.



Insulation devices

Model: S50 - 250 Size: 430 * 430 * 430 (mm)
 Fire extinguishing area: 70 - 80 m² Weight: 50 kg
 Packaging scale: 1 piece / Box
 Ignition model: Remote / Self-ignite / Air-drop
 Executive standard: CE / Directive 2013 / 29 / EU
 Appropriate site: for bushfire, chemical plants, oil fields etc.



Insulation devices

Model: Z5000 - 25 Size: 200 * 200 * 200 (mm)
 Fire extinguishing area: 15 - 20 m² Weight: 5 kg
 Packaging scale: 2 pieces / Box Appropriate site: for bushfire etc.
 Ignition model: Remote / Self-ignite / Air-drop
 Executive standard: CE / Directive 2013 / 29 / EU



Insulation devices

Model: Z10000 - 50 Size: 250 * 260 (mm)
 Fire extinguishing area: 30 - 40 m² Weight: 10 kg
 Packaging scale: 1 piece / Box Appropriate site: for bushfire etc.
 Ignition model: Remote / Self-ignite / Air-drop
 Executive standard: CE / Directive 2013 / 29 / EU



Insulation devices

Model: S70 - 500 Size: 530 * 530 * 510 (mm)
 Fire extinguishing area: 300 - 400 m² Weight: 70 kg
 Packaging scale: 1 piece / Box
 Ignition model: Remote / Self-ignite / Air-drop
 Executive standard: CE / Directive 2013 / 29 / EU
 Appropriate site: for bushfire, chemical plants, oil fields etc.



Insulation devices

Model: S100 - 750 Size: 540 * 540 * 540 (mm)
 Fire extinguishing area: 400 - 500 m² Weight: 100 kg
 Packaging scale: 1 piece / Box
 Ignition model: Remote / Self-ignite / Air-drop
 Executive standard: CE / Directive 2013 / 29 / EU
 Appropriate site: for bushfire, chemical plants, oil fields etc.

威准消防弹灭火面积参数

No.	Model	Mode	Fire Extinguishing Area (m ²)	Packaging (Box)	Weight (kg) ±5%	Appropriate Sites
1	WZMHD-M750	Hurl pull-ring	2-3	8 pieces	0.9	Families, office buildings, schools, shopping malls, markets, etc.
2	WZMHD - MLW M1000 -10	Hurl pull-ring	3-5	6 pieces	1.1	Families, office buildings, schools, shopping malls, markets, etc.
3	WZMHD - SL S2000 - 20	Throw	6-8	4 pieces	2.2	Families, office buildings, schools, shopping malls, markets, etc.
4	WZMHD - Z Z5000 - 25	Throw	15-20	2 pieces	6	Forests, mountains, grasslands, power plants, oil fields, chemical plants, etc
5	WZMHD - Z Z10000 - 50	Throw	30-40	1 piece	11.5	Forests, mountains, grasslands, power plants, oil fields, chemical plants, etc
6	WZMHD - Z S20 - 70	Throw	50-60	1 piece	22.5	Forests, mountains, grasslands, power plants, oil fields, chemical plants, etc
7	WZMHD - ZG S50 - 250	Throw	70-80	1 piece	55	Forests, mountains, grasslands, power plants, oil fields, chemical plants, etc
8	WZMHD - Z S70 - 500	Throw	300-400	1 piece	75	Forests, mountains, grasslands, power plants, oil fields, chemical plants, etc
9	WZMHD - ZG S100 - 750	Throw	400-500	1 piece	110	Forests, mountains, grasslands, power plants, oil fields, chemical plants, etc

Safe and eco-friendly certified by the National Science and Technology Department

Patents



Cavity

The shell of the product is made by recycled paper. The cavity of the product is filled with ultrafine dry powder fire extinguishing agent. The paper can be degraded after explored.

Ultrafine ABC dry powder



The product has no ozone depletion potential, no greenhouse effect potential, no irritation to the human skin and respiratory tract as well as no corrosion to protective substances (i.e. toxic and hazard free). Residues are easily cleanable after the fire has been extinguished and can thus be widely used in various production and living scenarios to extinguish classes A, B and C fires and those fires caused by live electrical equipment. Our fire extinguisher device has been accredited by China's science and technology authorities to be the first of its kind in the nation and also a global leader.

In 2018 won the Outstanding Achievement Award of China's Scientific and Technological Innovation and Invention



EU CE certification

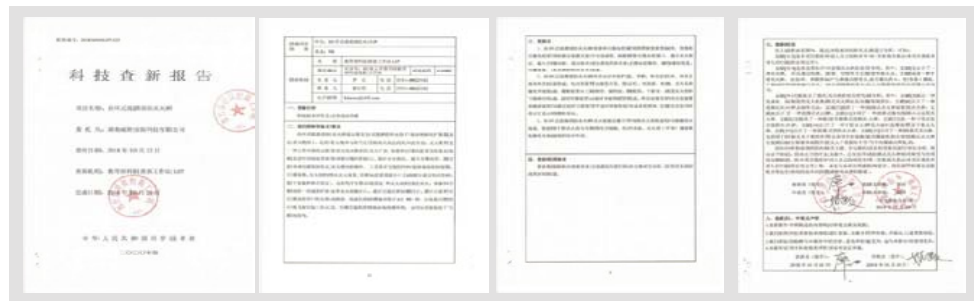


ISO9001 Certifications



EU CE certification The EU CE certification is a product quality safety and manufacturing system assurance, which is regarded as a passport for manufacturers to enter the European market. All products affixed with the CE certification can be sold in the EU member states without meeting the requirements of all member states which therefore permits the liberal circulation of goods within the EU member states.

National Ministry of Science and Technology / Science and Technology Novelty Search Report



National Firecrackers Products Quality Supervision and Inspection Report



Approval document for passing the test of the Ministry of Emergency Management of China

National Fire Products Quality Supervision and Inspection Report



Certificates of National Credit Enterprise



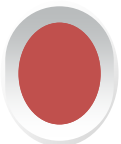
7 Advantages of World Joy's Fire Device

Authority



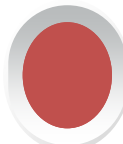
obtained among others EU CE certifications, ISO9001 international standard system certifications and 35 China's national patents.

Innovation




produced innovative double insurance design, environmental protection materials and fire extinguishing principle.

Safety



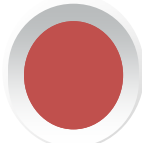
very safe for human body and objects, with a shelf life of three years.

High Efficiency




able to prevent fire, automatically extinguish fire and quickly extinguish fire within a short time without re-ignition.

Environmental Protection




the potential value of atmospheric ozone depletion is zero and the potential value of greenhouse effect is zero. No pollution for air, soil or water.

Convenience



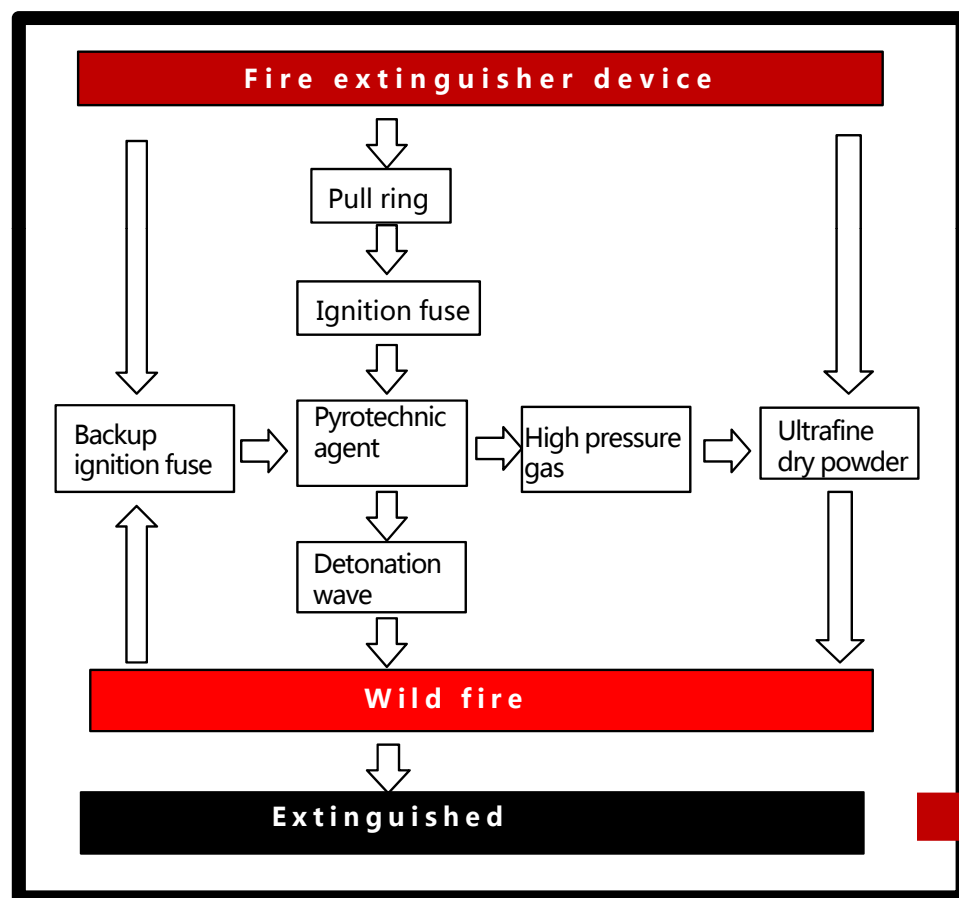
convenient to carry and easy to use as one pull and one throw by both young and elder men and women can extinguish the fire.

Universality



the fire extinguishing range is wide which is ideal for the prevention, control and rescue of various fires in different scenes.

Proprietary Technology and Technical Innovation



Pull-ring design

User friendly and faster than traditional ignition fuse



Eco-friendly materials

Meet national environment standards and recognized by the government as setting the national firefighting standards



Innovative firefighting principle

Blend the shock-wave principle with traditional approaches for more effective fire extinguishment

The description of the principle

The pull-ring triggered projectable extinguisher device is activated by pulling the ring so that the percussion cap ignites the safe ignition fuse. The ignition fuse propels the fire into the device to ignite the inner pyrotechnic agent component in a time-delay manner. The pyrotechnic agent instantly deflagrates to generate high-pressure and high-temperature gas to form columnar detonation waves which in turn exert negative pressure to cut off flames of the surrounding combustibles and destroy their combustion chain links. In parallel the ultrafine fire-extinguishing dry powder is also covered at a high speed such that the fire is instantly extinguished. In parallel, the ultrafine fire extinguishing dry powder decomposes at high temperature to form a glass-like isolation film barrier on the combustibles and thereby would no longer re-ignite.

Applicable fire scenes



Forest /Mountain/Prairie



High buildings



Electricity Equipment
Sites



Oil fire



Gas stations/Oilfield/Oil
depot



Chemical fire



Storage fire



Household fire



World Joy's fire bombs are used to extinguish bushfire with UAVs



The fire bombs can extinguish efficiently and quickly fire in oil



World Joy's fire bombs can extinguish quickly and safely electric well fire



World Joy's fire bombs put out the fire in the carriage quickly and safely



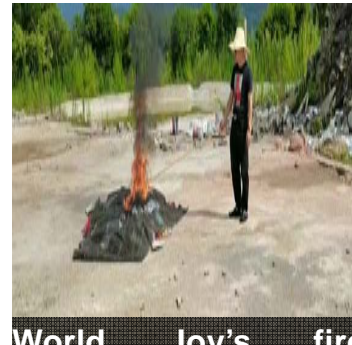
The fire bomb is totally harmless to human body and objects



The fire bomb did not damage the 0.5cm glass



World Joy's fire bombs can put out bushfire easily



World Joy's fire bombs can easily put out fire chemical inflammables



Firefighters can wear World Joy's fire harness and carry several fire bombs into the fire site to open the life passage

Fire extinguisher devices can compensate for the lack of traditional fire fighting methods and equipment

Traditional method

Require personnel to operate at close range which increases risks and causes accidents

It takes at least 30 minutes for fire fighting from the alarm call to fire scene arrival, especially in the old cities

The ordinary height of the fire hose is only 50 m.

The entire building must be powered off when the fire trucks use water to extinguish the fire. It is not easy for the people trapped to evacuate which generally causes accidents.

VS

New environmental protection fire extinguisher devices

Safety

The fire extinguisher device occupies a safe distance from the fire. It can be thrown in to open continuously the passage of life

Efficiency

Property personnel or operators can arrive at the fire scene within 5 minutes to carry out the rescue task

Unlimited Height

If each building floor is equipped with fire extinguisher devices, the fire site can be weakened/isolated/ cleared first to allow access for the fire truck

Power remains

Fire extinguisher devices do not need to be powered off to operate and it is more convenient to operate to save lives and eliminate fire without affecting the evacuation

Fire extinguisher devices can compensate for the lack of traditional fire fighting methods and equipment

Traditional method

Environmental pollution: chemical fire extinguishers pollute the environment and also harm the human body

The traditional fire extinguisher is RMB 300-400 per sq.m. based on the budget cost of high-rise fire extinguishing pipeline project

Regular foam fire extinguishers are valid for one year and need to be replaced every year.

VS

New environmental protection fire extinguisher devices

Environmental protection

No pollution: the outer package belongs to environment-friendly recycled paper whereas the inner device ABC ultra-fine fire extinguishing dry powder is a compound fertilizer containing nitrogen and phosphorus, which does not pollute the environment and does not irritate the human skin and respiratory tract

Price

The budget cost of World Joy's fire bomb is RMB 42 per sq. m.

Long Effective period

Valid for 3 years without the need for replacement



Thank you !

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