

Finished powder packaging and storage.

Some producers of black powder will cross-blend several lots of powder prior to packaging to promote better lot to lot uniformity. Some do not.

Some powder producers will give the powder a quick pass over a fine screen to remove dust prior to packaging. Some do not.



Figure 72. Warehouse.

Packaging materials in the storage warehouse at the S/A Pernambuco Powder Factory.

The packaging of the powder at the S/A Pernambuco Powder Factory was performed by women. I would point out that powder packaging at GOEX is also done by women.



Figure 73. Path to magazine.



Figure 74. Magazine entrance.

The magazines are built into what might best be described as man-made hillsides. Thick concrete structures covered over with dirt to keep the interiors cool in hot weather.

The discussion here on packaging will be confined to what a small-arms shooter would handle.

Some shooters will purchase powder in bulk boxes. These are cardboard boxes that hold 25 pounds of powder packaged in a plastic bag within the box. These cannot be shipped by common carrier and therefore must be picked up at the powder distributor.

The DOT allows the shipment of black powder via common carrier provided the powder is packaged in one-pound containers with a maximum of 25 pounds per box.

These boxes are constructed from heavy cardboard. Very rugged construction to protect against puncture, rupture or spillage of the contents during shipment.

The DOT regulations allow only two of these 25 pound boxes of powder in a common carrier truck at a time.

Common carrier shipping fees and hazardous materials handling charges adds to the cost of the powder. At present the hazmat fee per case of black powder is \$20.

So the federal DOT regulations on common carrier shipment of black powder determines what sort of container the shooter will purchase powder in.

Some years back shipments of black powder arrived in the United States from European powder companies looking to get into the U.S. market. They had packaged their powders in 1 kilogram plastic bottles. Since a kilogram is equal to 2.2 pounds these containers were not legal to ship the powder in via common carrier. The powder could in essence be sold in this containers. They just could not be shipped via common carrier under the black powder exemption where for shipping purposes it is classed as a flammable solid rather than as an explosive. In addition, this variance only covers black powder when used for sporting or cultural purposes.

Once the powder arrives in the shooters hands another set of regulations comes into play. ATF regulations require that the shooter store the black powder in an ATF approved magazine. There is also a limit on how much black powder may be stored within an occupied dwelling or within a certain distance of an occupied dwelling.



The magazine has a locking lid to limit access to its contents.

Handles allow it to be picked up and carried in an emergency.

Wheeled casters allow it to be easily moved around without generating sparks on concrete floors.

The bright red color is supposed to denote dangerous contents.

Figure 75. ATF approved powder magazine.

Once in the hands of the shooter there is another set of regulations that come into play. Most incorporated areas have building codes. Most follow a national guideline. In most built up areas the shooter is limited to have no more than 5 or 6 pounds of black powder on the property at any given time. In rental apartment complexes there is often a prohibition in a lease against storing dangerous materials in an apartment.

The federal government DOT variance for the shipment of black powder via common carrier was first applied for by GOEX back in the 1970's after they purchased the black powder business from Du Pont. The National Muzzleloading Rifle Association (NMLRA) was a driving force behind this. At that time the sales of small-arms black powder was only a small part of GOEX's overall powder business. It did not represent a major portion of their business as it does today. But small-arms powder production was used to fill out the production schedule.

As other producers entered the U.S. market the DOT variance had to be extended to them also.

Between 1972 and 1993 GOEX totally dominated the market for black powder in the U.S. GOEX has always packaged their black powder in tin plated cans. U.S. black powder shooters became accustomed to working with powder in these cans. Historically black powder had been packaged in tin cans since the time of the U.S. Civil War.

As foreign powder producers became active in the U.S. black powder market they too packaged in tins cans for the U.S. market.

Then in 2000 the S/A Pernambuco Powder Factory switched to plastic bottles. These were greeted with a great deal of scepticism by the U.S. black powder shooters. The claim being that if the plastic used in the manufacture of the bottles did not contain an anti-static agent the bottles would pose a hazard from static spark ignition of the powder in the containers.

The switch from tin cans to plastic bottles by the S/A Pernambuco Powder Factory was brought about by problems with the tin cans they had been using. The Elephant black powder produced by the S/A Pernambuco Powder Factory had first arrived in the U.S. in tin cans manufactured in Brazil. These cans had a heavy coating of tin, compared to those made here in the U.S. The tin plating was in turn protected by a thin coating of a lacquer. This lacquer coating has been used to protect tin cans when the material being packaged contains sulfur. Tin plating has a poor resistance to sulfur and various sulfur compounds. These cans did not however have the threaded metal spouts onto which a metal cap would be screwed. These cans had an insert that was a plastic spout with a plastic cap. This design had actually been copied from C&H powder cans of the late 1960's.

The U.S. black powder shooters did not like the plastic spouts. The modified metal caps with pouring spouts used on GOEX cans would not fit on the Elephant can spouts. Then there were the claims that pouring the powder through the plastic spout could result in static spark ignition of the powder. Another shooter tried to tell the importer that the translucent plastic spout would allow sunlight into the can and destroy the powder.

The Brazilian can manufacturer flatly refused to consider manufacturing can with metal spouts and caps as is seen in GOEX cans. It was then decided to purchase powder cans made in the U.S. and ship them to the powder plant in Brazil in the empty shipping containers being returned to the plant.

These American made powder cans had a very thin tin plating. These cans were prone to rusting and corrosion on the voyage down to Brazil, storage in a humid climate and then a return to the U.S. as full cans of powder.

By 1999 it was decided to shift over to plastic bottles for Elephant powder.

The S/A Pernambuco Powder Factory sent samples of the plastic bottles to the U.S. for inspection and approval. They were filled with powder and subjected to DOT testing which they passed.

The 2000 shipment of Elephant into the U.S. was in these plastic bottles and no problems were encountered. With a little education on the nonsense of electrostatic spark ignition of black powder the plastic bottles quickly became accepted by the shooters.

Then in 2001 the U.S. importer doubled the powder order. The idea being that the S/A Pernambuco Powder Factory was to be moved to a new location and the ordering of extra powder would cover the period of time required to move the powder production to a new site.



Figure 76. Elephant bottle.

very low density polyethylene. One that became brittle at low temperatures.

Shortly after the 2001 production Elephant went out to the distributors the problem with the bottles became evident. The importer had to then purchase American made tin cans, have labels printed up and repackage most of the powder. A rather costly affair.

All of that as a result of the U.S. shooters not wanting tin plated powder cans with plastic spouts as C&H had once used.

To meet the increased demand for the plastic powder bottles the Brazilian bottle producer speeded up their bottle blowing machinery. This proved to be an utter disaster once the 2001 shipment arrived in the U.S. During cold weather, if the full plastic bottle was dropped the bottom corners of the bottle would shatter.

In speeding up the bottle blowing machines the bottle producer created a problem where the corners of the bottom of the bottles became paper thin. These bottles were blow molded using a low density polyethylene. Best described as a



Figure 77. GOEX can. 2004 prod.



Figure 78. Swiss can.

I would at this time mention that the French SNPE black powder company packaged black powder in plastic bottles and in cardboard milk containers in the past years. WANO has for some years packaged their powder, for sale in Europe, in translucent plastic bottles holding 1 Kg of powder.



Figure 79. Cap and spout.

Until recently the U.S. market seemed to be in another world. Part of the problem in the U.S. is the number of shooters who claim to have a great deal of knowledge in these matters.

When working with tin cans with metal spouts and caps it is usual to have a modified cap on hand to act as a spout for the pouring of powder from the can.

The photo shows a commercially made cap and spout assembly.

Some shooters simply take an old cap, drill a hole in it and solder part of a brass cartridge case into the opening. Spent .223 cases make nice spouts in this application.

The Swiss powder can had originally been purchased by GOEX. The Swiss then disassociated themselves from GOEX and signed on another company as their U.S. importer and distributor. The new importer/distributor then purchased the powder packaging materials from GOEX. At the time GOEX's Minden, LA plant was out of production following a fire and explosion in their corning mill building. The new Swiss importer/distributor then paid GOEX to package Swiss powder from bulk containers into the tin cans originally purchased by GOEX. Sticky labels were used to cover the GOEX identification.



Figure 80. KIK can front.

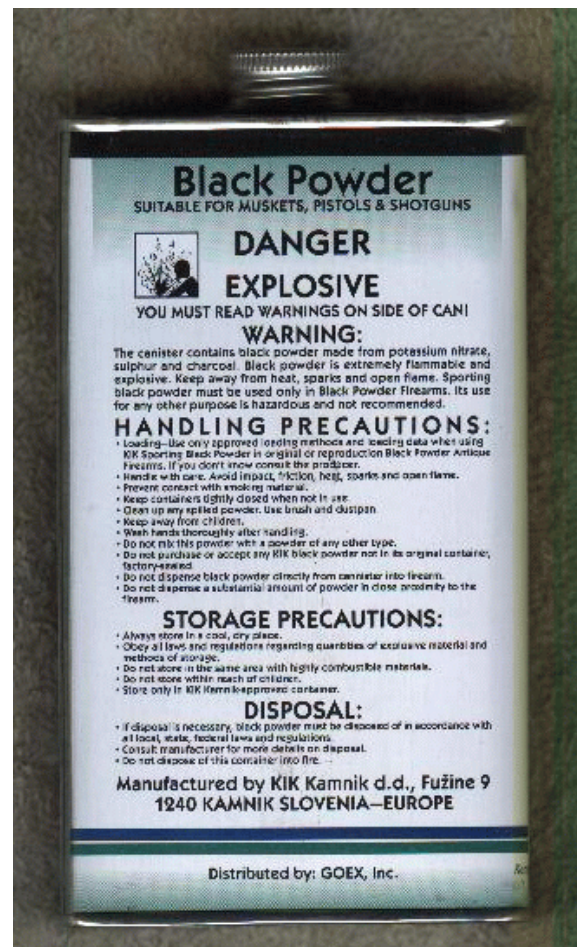


Figure 81. KIK can back.

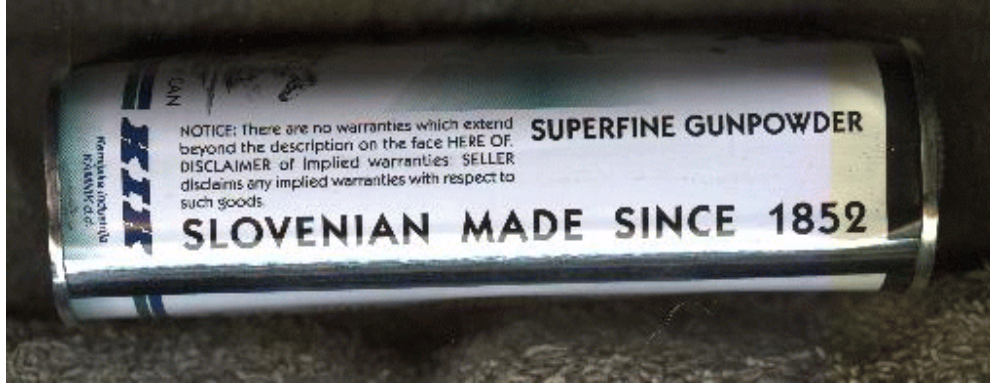


Figure 82. KIK can side panel.

There is an interesting story behind the can seen in these photos. This can was out of a shipment of KIK powder from Slovenia that came into the U.S. in the summer of 2000.

When GOEX started up their then new powder plant near Minden, LA in early 1998 they had a serious problem with their charcoal supplier shipping them off-grade charcoal. The quality of the powder produced at the Minden plant was not up to the standards of the powder out of the old plant at Moosic, PA.

GOEX had been losing market share to the Elephant brand black powder out of Brazil. With the decline in powder quality with Minden production they began to lose even more business.

When GOEX closed the Moosic, PA powder plant in 1997 they were unsure when the new plant near Minden would be up and running at an acceptable level of production. GOEX had been approached by the Swiss powder plant with the idea that GOEX would distribute the Swiss powder in the U.S. GOEX reps visited the powder plant in Switzerland. GOEX asked the Swiss about a source of cheap powder that GOEX could purchase for resale in the U.S. The Swiss then introduced GOEX to the KIK Kamnik plant in Slovenia. The KIK Kamnik plant had recently been “privatized” and was looking for business.

So between early 1998 and early 1999 GOEX had imported roughly 1 million pounds of black powder from the KIK Kamnik plant in Slovenia.

Then the Swiss dumped GOEX and went with the U.S. importer of Elephant brand black powder.

GOEX then went to Slovenia to teach the KIK Kamnik plant how to make a rifle burn rate powder suitable for the U.S. market. The KIK Kamnik plant had access to commercially prepared alder wood charcoal. GOEX also gave them the screen sizes needed to comply with our grain sizing methods.

The side panel of the KIK can states “Superfine Gunpowder”. The term “Superfine” was a Du Pont trade mark dating back to around 1836. When Gearhart-Owen purchased the Du Pont black powder business the Du Pont “Superfine” trade mark went to GOEX. Here we see that trademark on a can of black powder produced in Slovenia.

The can states "Slovenian Made Since 1852".

For years GOEX tried to capitalize on the Du Pont heritage since GOEX had purchased the production facility, business and "technology" from Du Pont.

Then Elephant comes onto the U.S. market made in a powder plant founded in 1866. So with the KIK powder GOEX one-upped Elephant by 14 years. Sort of. My plant's older than your plant.

The idea being that you impress the shooters with this vast store house of accumulated powder making knowledge from all of these years of producing black powder. Laughable in the extreme!

This KIK powder was a good bit faster in a gun compared to GOEX production and Elephant powder at that time. Those who shot it in cartridge rifles thought it was as fast as the Swiss powder. That this powder would blow the Swiss out of the U.S. market. Until they found that they could not get the KIK to shoot with enough accuracy to win matches.



Figure 83. LunaTech

In the year 2000 WANO, in Germany, was looking for a U.S. importer/distributor to market their powders in the U.S. They sent a container of small-arms black powder to a company in Georgia by the name of LunaTech. This company produced indoor fireworks using WANO powders.

Since the powder sent to LunaTech was in bulk boxes it had to be repackaged into one pound containers. As is seen in this photograph.

These cans were actually easy to handle. The normal flat top cans have a lip where the metal spout is locked into the can top. It then becomes difficult to empty the cans completely. This funnel top can did not have that problem. Every grain of powder would come out when emptied.

And in the battle of our plant is older than your plant WANO topped KIK by 131 years!

U.S. shooters may soon see another black powder on the U.S. market. Something of a rebirth of the old Elephant brand black powder. Imported into the U.S. as Diamondback black powder.



Figure 84. Diamondback can in a box.

In looking at the cans the Diamondback comes packed in. Will this be a re-run of what Elephant had gone through with their original cans.

The individual cans of Diamondback brand black powder come packed in a box that fits the can snugly. These then go into a heavy shipping box.

By U.S. standards this is considered to be a bit of over-packaging with additional weight resulting in higher shipping costs.

The cardboard box will prevent damage to the can but is it really required.



Figure 85. Retractable spout and cap.

The cans are of Brazilian manufacture by the same company who had produced the original Elephant cans.

The can is closed by a plastic spout and plastic cap that may be pushed down into the opening when not in use and pulled up for pouring powder from the can.



Figure 86. Spout and cap raised.



Figure 87. Ready to pour.

The size of the spout is nearly ideal for pouring powder into a powder measure in the loading of an ml rifle.

The only flaw in this design is the size of the tab that holds to pull ring to the cap.

One powder distributor looked at these cans and had the ring break away from the cap on the first attempt to pull the spout and cap up and out of the can. The amount of plastic between the cap and the ring should have been a bit larger for a bit more strength. This happened in cold weather and may also relate to the grade of low density polyethylene used to mold the cap and ring.

In the packaging of the Swiss black powder the plant switched to plastic bottles several years ago.



Figure 88. Swiss bottle.

These bottles are produced by RP in Finland and are molded from high density polyethylene.

The strength and quality of these bottles is beyond question. Blow molding as an art form.

There is almost no difference in the wall thickness of the bottle from the top to the bottom. The thickness of the material in the corners is only slightly less than the thickness of the vertical areas.



Figure 89. WANO Schuetzen.

When WANO, in Germany, developed the Schuetzen brand black powder for the U.S. market they went right to the same plastic bottles then going into use at the Swiss black powder plant.

The Schuetzen bottles are identical to those used by the Swiss plant.

Shipping and pricing.

In the U.S. the 25 pound box has been the standard shipping container for roughly 30 years. That is now changing.

In some areas of the U.S. it is impossible to find a gun shop that stocks black powder. Some shooters of black powder have found it necessary to order powder from distributors and have it shipped directly to their residence. Costs per 25 pound case and local storage regulations make purchasing a 25 pound case of powder out of the question.

GOEX responded recently by introducing a 10-pound box. For the past few years some powder distributors would sell and ship less than 25 pounds of powder to a customer. To do this they needed extra 25 pound boxes. When shipping less than 25 pounds in a box they would have to fill the empty space in the shipping box with wadded up paper. This new 10 pound box will allow the distributors to better deal with the 5 and 10 pound orders.

Some powder distributors have refused to ship less than full cases. Some black powder shooters switched from black powder to one of the substitutes simply because they could not purchase small amounts of black powder.

From the Internet.

Maine Powder House

Prices quoted include shipping charge and \$20.00 per box hazardous materials fee.

Schuetzen	25 pound case, \$325.00 - \$13.00 per pound.
GOEX	25 pound case, same as above.
Swiss	25 pound case, \$467.00 - \$18.68 per pound.

Powder Inc.

Prices quoted include shipping and hazardous materials fee.

GOEX	25 to 50 pound order	\$11.85 per pound.
	10 pound order	\$14.90 per pound.
	5 pound order	\$18.80 per pound.
GOEX CTG	25 to 50 pound order	\$12.50 per pound.
	10 pound order	\$15.55 per pound.
	5 pound order	\$19.45 per pound.
GOEX Cowboy	25 to 50 pound order	\$12.20 per pound.
	10 pound order	\$15.25 per pound.
	5 pound order	\$19.15 per pound.
GOEX Express	25 to 50 pound order	\$17.30 per pound.
	10 pound order	\$19.80 per pound.
	5 pound order	\$23.70 per pound.
Swiss	25 to 50 pound order	\$17.75 per pound
	10 pound order	\$20.05 per pound.
	5 pound order	\$23.95 per pound.
KIK	25 to 50 pound order	\$10.40 per pound.
	10 pound order	\$13.90 per pound.
	5 pound order	\$17.80 per pound.

The Powder, Inc. web site also shows a powder called “Skirmish”. This black powder was made in China and imported into the U.S. in April 2005. Someone imported a container holding 37,732 pounds of black powder. The ITC Dataweb shows a landed duty paid value of 59 cents per pound.

Shipped out of Powder, Inc.

25 to 50 pounds	Fg	\$ 7.80/Lb.	FFFg	\$ 9.80/Lb.
10 pounds	Fg	\$11.30/Lb.	FFFg	\$13.30/Lb.
5 pounds	Fg	\$15.20/Lb	FFFg	\$17.20/Lb.

In the material presented on how black powder is processed in a black powder plant there was no mention of black powder production in modern day China even though China is usually given credit for the invention of black powder.

When one looks at black powder production today in China one point stands out. They do not use wheel mills to produce black powder. Only ball mills. With the use of a ball mill to grind and mix the ingredients it is not possible to produce a rifle burn rate black powder, let alone a fast, hot burning sporting type powder. A musket burn rate powder is about the best one might expect out of a ball mill.

In 1994, then President Bill Clinton enacted an embargo on goods made in China that fall under the Department of State’s International Traffic in Arms Regulations. It became illegal to import any articles enumerated in the regulations.

To quote from a letter from the Department Of The Treasury, Bureau Of Alcohol, Tobacco And Firearms dated July 18, 2002. “Propellant, smokeless and black powders are articles enumerated on the U.S. Munitions Import List and are subject to the importation controls of the Arms Export Control Act of 1976 and the regulations issued pursuant thereto (27 CFR Part 47). Accordingly, we have no authority to approve the importation of these articles from China.”

A search of the ITC Dataweb shows that prior to 1995 there were shipments of HTS 3601 code propellant powders into the U.S. From 1995 until April 2005 there was not a single pound of propellant powder entering the U.S. from China.

But in the year 2000 we saw Chinese Lidu manufactured black powder show up for sale to black powder shooters in the U.S. Sold by a company known as Corman’s Sporting Goods which closed shortly after they began to sell this Lidu black powder. The can label showed that the powder had been purchased from a fireworks company in New Jersey.

This powder had originally been imported into the U.S. in boxes marked as fireworks. Finished fireworks. One simply does not import black powder in bulk boxes into the U.S. under a false description. But they did.

So whoever imported the black powder in April 2005 now being sold as “Skirmish” powder managed to do so legally with government permission.