

KIK Black Powder
Imported and Distributed
by
GOEX, Inc.

Background.

In June of 1997, GOEX, Inc. closed the Moosic, PA black powder plant that they had operated since 1972. Construction had previously started on a new plant near Minden, Louisiana.

Start up of the new plant was delayed until March of 1998. So there was a period of about 8 months where GOEX was out of production.

Through contacts with the Swiss black powder plant, management from GOEX was introduced to the management of a black powder production facility in Slovenia. GOEX then began to purchase black powder from the plant in Slovenia for importation into the U.S.

Known as KIK D.D. This plant is no longer in operation. (2009)
According to a powder can.
KIK Kamnik d.d., Fuzine 9
1240 Kamnik Slovenia - Europe

This company being part of Kemijska industrija Kamnik d.d.

The black powder plant dating its origin back to 1852.

From the: United States International Trade Commission
Interactive Tariff and Trade Data Web (<http://dataweb.usitc.gov>)

HTS - 3601: Propellant Powders - For Slovenia

1998 - Feb.	35,750 pounds.
1998 - Mar.	32,780 pounds.
1998 - Jun.	35,750 pounds.
1998 - Jul.	35,640 pounds.
1998 - Sep.	31,425 pounds.
1998 - Oct.	35,750 pounds.
1998 - Nov.	71,500 pounds.
1999 - Jan.	35,750 pounds.

The Data Web shows the price per pound for this powder averaged between \$1.80 and \$1.90 U.S. dollars per pound. Packed in bulk containers according to the amount in each shipment. The shipments above represent large containers being used which hold 32 to 35 thousand pounds of black powder when packaged in bulk boxes. The Nov. 98 shipment being two large containers in one shipment.

What type, or types, of black powder this represents is unknown outside of GOEX, Inc.

After the January 1999 shipment of powder from Slovenia there was no additional supplies imported by GOEX from Slovenia. Then in May 2000 a single container arrived from Slovenia. The container holding 26,369 pounds of powder with a price of roughly \$3.20 per pound.

In early 1998, GOEX, Inc. had agreed to become the North American distributor for black powder made in Switzerland by Poudrerie D' Aubonne S.A., CH-1170 Aubonne, Switzerland.

This agreement between GOEX, Inc. and Poudrerie D' Aubonne was terminated in July of 1999 by mutual agreement.

During the period of time that GOEX, Inc. was the U.S. distributor for the Swiss powder, GOEX management had complete access to the Swiss black powder plant. While GOEX was dealing with the KIK black powder plant in Slovenia.

The May 2000 shipment of black powder, to GOEX, Inc. from KIK, in Slovenia, consisted of what GOEX, Inc. would claim to be a sporting powder made using alder charcoal.

So what we had here was GOEX being dumped by the Swiss as their North American importer/distributor. GOEX, Inc. had seen how the Swiss manufacturer their black powder. The Swiss black powder being a classic 19th century fast-burning, moist-burning sporting powder.

Based on comments made to various black powder shooters here in the U.S., GOEX, Inc. felt that this Slovenian-made KIK "sporting" powder would be a cheaper alternative to the high- priced Swiss black powder.

Basically, not intending to be mean-spirited, GOEX, Inc. knows their process for manufacturing black powder. Get them out of that rut and they are lost. That they failed utterly to grasp the properties of a true sporting powder and how one would manufacture such a powder shows in the KIK produced "sporting powder". The idea being that the secret to a sporting type powder is in the type of wood used. GOEX had long used a maple wood charcoal that had been produced by the Roseville Charcoal Company in West Virginia. All of the good sporting powders have been made using alder or buckthorn alder charcoal. So it appears that the idea was that as long as KIK used alder charcoal they would be producing a sporting type powder.

So GOEX, Inc. coached the KIK-Kamnik powder plant through the process of producing what was supposed to be a sporting type small-arms black powder. Since this KIK-Kamnik black powder plant had long been part of a military munitions complex they had no idea of what actually went into a small-arms black powder nor what the powder's properties should be.

The prevailing idea is that the present black powder producers are experts in the field and that they are the final word in powder technology matters. This has proven to be a misconception on the part of those not directly involved in the black powder manufacturing business.

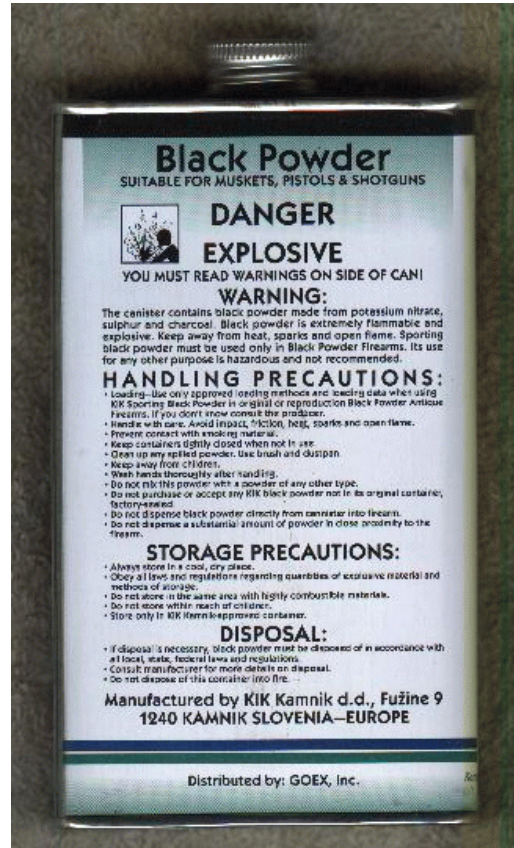
GOEX, Inc. began shipping the KIK "sporting powder" in June of 2000. In mid-2002 it can still be purchased from GOEX master distributors and from gun shops around the country. That 26 thousand pounds of powder did not sell out in 2 years speaks volumes for the powder. Especially given the fact that it sells for about the same price as Elephant brand black powder which sells about 100,000 pounds per year.

Packaging.

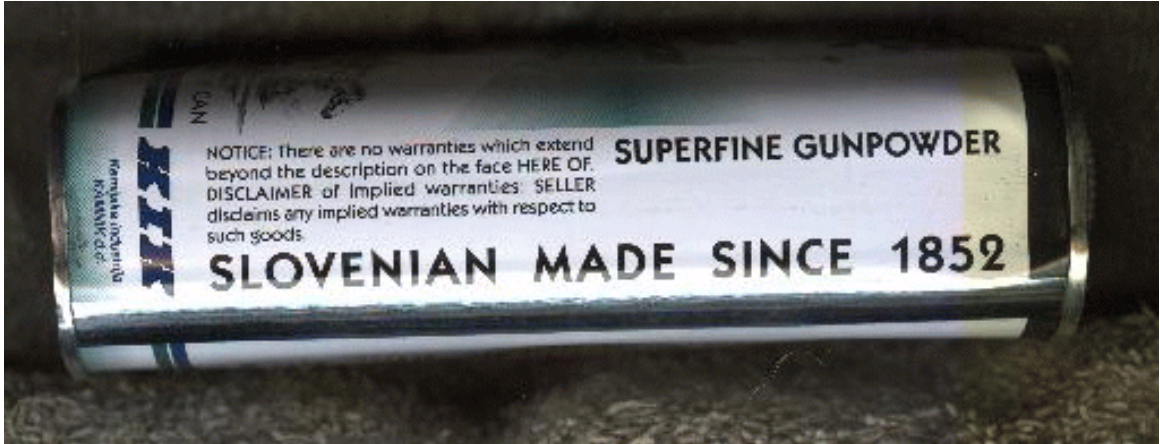
The cans used by KIK-Kamnik are some of the best powder cans seen in recent years. A very good job of tin plating. The cans fabricated to match GOEX's tin plated powder cans in size, spout and cap dimensions.



Front of KIK powder can.



Back panel of KIK powder can.



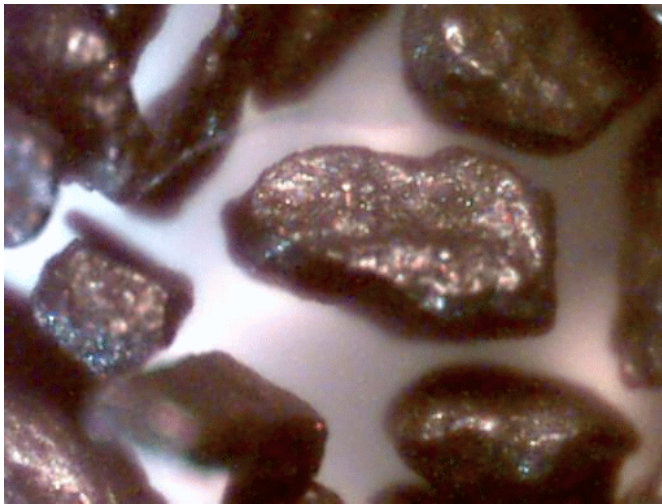
Side panel of KIK powder can.

The back panel of the KIK can is simply a copy of the back panel of a GOEX black powder can of the same time period.

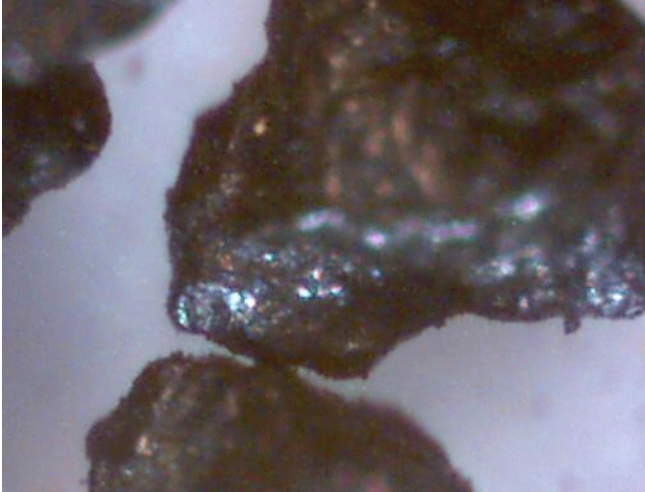
The side panel on the KIK can is of particular interest. The term “Superfine Gunpowder” was long a trade mark of Du Pont black powder. First used around 1836 by Du Pont on their black powder containers holding the rifle type powder. The trade mark passing into GOEX’s hands when Gearhart-Owen bought the business from Du Pont. So GOEX allowed KIK-Kamink to use that trade mark on small-arms black powder made by KIK for shipment to GOEX in the U.S.

The powder.

Microscope views of powder grains.



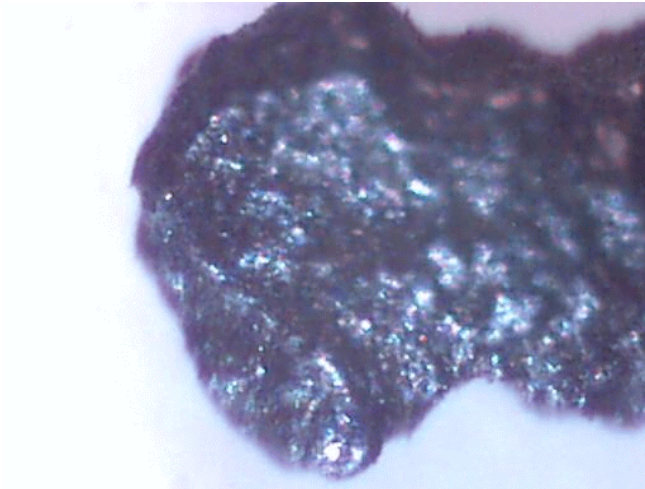
KIK 2Fg at a magnification of 60X.



KIK 3Fg at a magnification of 200X.

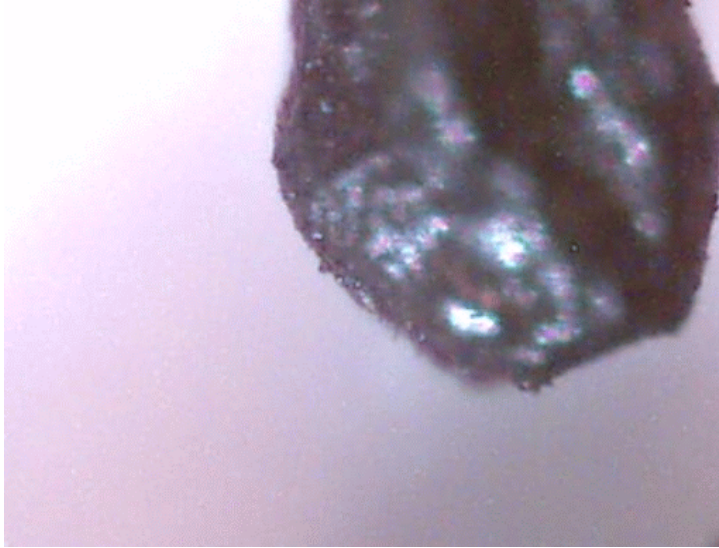
Note the appearance of the edges of the grains. The “fuzzy” appearance being powder dust clinging to the surfaces of the grains.

This powder was not cleaned after the grain polishing step in the manufacturing process.



KIK 3Fg grain at 200X under strong light.

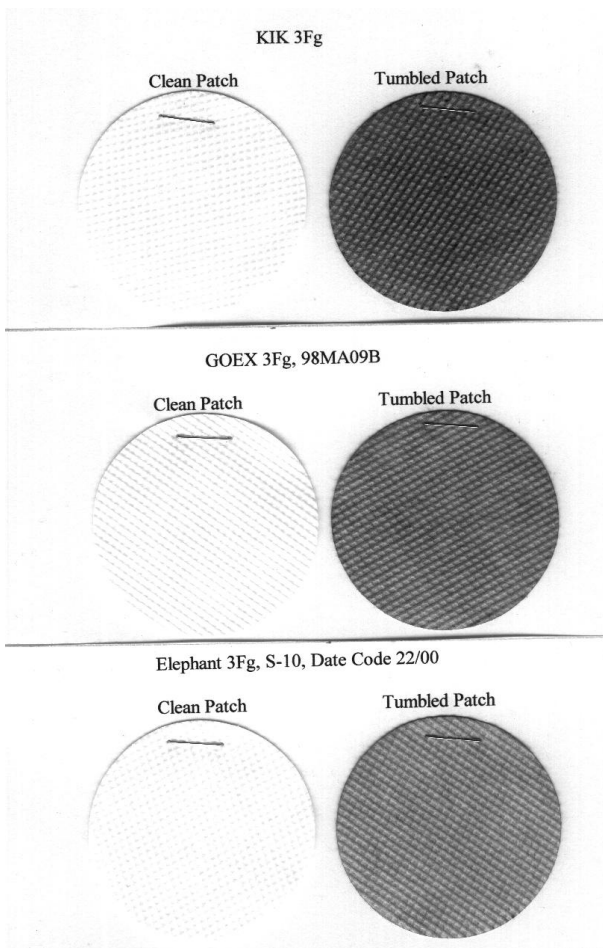
This photo shows that the KIK powder grains were not well polished during the polishing process. The grains having rather rough surfaces compared to other brands of black powder.



KIK 3Fg at a magnification of 200X

This microscope photo also shows the amount of powder dust clinging to the surfaces of the powder grains.

This makes for a dusty powder that is dirty to handle and will detract from accuracy in the gun.



This is another way of looking at how clean a sample of black powder is, on a comparative basis.

Four volume ounces of powder are plastic in a PETE plastic peanut butter container that is 3 inches in diameter and 4.75 inches in height. A clean white gun cleaning patch is placed in with the powder.

The bottle is then rolled and tumbled for 5 minutes, gently of course. The idea being to get the powder grains to tumble and slide over the cleaning patch. Excess grain surface dust being collected in the “weave” of the cleaning patch.

The intensity of the color indicating the amount of dust present on the powder grains. Color ranging from light grey with a clean powder to black with an exceptionally dusty powder.

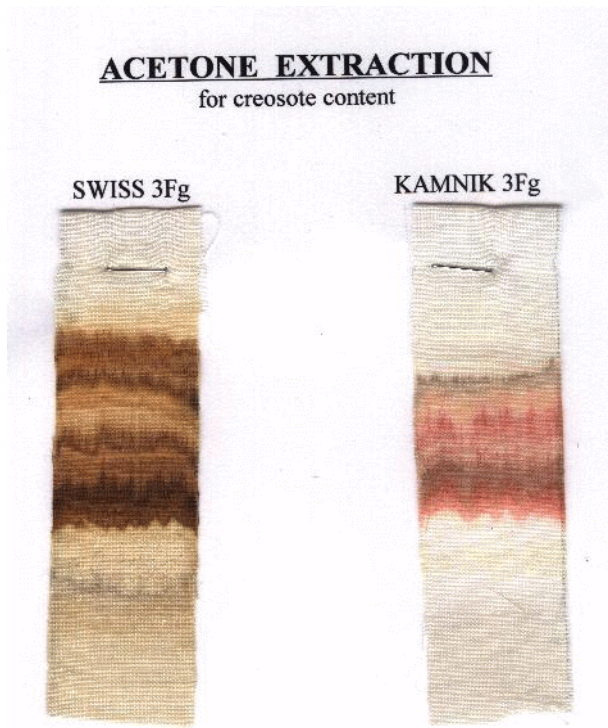
Hygroscopic behavior.

The powder samples were prepared by drying them to constant weight in an oven at 160 degrees F. Constant weight then being taken as zero moisture content.

Weighed samples of the powder then being placed in an aluminum foil tray. The trays placed outside under roof, but without walls. The trays holding the powder being weighed at intervals with the temperature and relative humidity recorded.

<u>Conditions</u>	<u>KIK 3Fg</u> Lot 00.04	<u>GOEX 3Fg</u> 98MA09B	<u>Elephant 3Fg</u> Lot S-10, Date Code 22/00
82 F - 56% RH	1.0%	0.7%	0.7%
77 F - 62% RH	1.1%	0.9%	0.8%
73 F - 71% RH	1.2%	1.1%	1.0%
73 F - 73% RH	1.2%	1.2%	1.1%
Left out overnight, cooler, drier air moved into the area.			
72F - 46% RH	0.8%	0.7%	0.6%
Nothing startling in this data.			

Looking at charcoal properties.



Here we have acetone extractions of the Swiss black powder and the KIK black powder. This acetone extraction will leach any creosote present in the powder. Creosote from a charcoal charred under very specific conditions. This type of extraction will also indicate if the wood had its bark removed prior to having been charred.

In this test, weighed amounts of powder are placed in 4 ounce jars. The jars then being filled with fresh, dry acetone. The powder is acetone leached for 1 hour. The acetone then being poured into clean 4 ounce jars.

Wicks of thin cotton cloth are then suspended in the jars.

Where the acetone evaporates from the wicks it will deposit and materials that were dissolved from the powder.

The wick deposits from the Swiss powder smell strongly of “oil of creosote”. This is the form of creosote generated by the destructive distillation of various type of wood. The odor of a smoked ham, not a railroad tie in the hot August sun. The buckthorn alder wood charcoal used in the Swiss powder would show about 8%, by weight, of oil of creosote.

The wick deposits from the KIK powder smell only faintly of oil of creosote and the brown coloration on the wick shows that only a trace of oil of creosote is present in the alder wood charcoal used to prepare this powder. The red bands and the thin green band (top most band) suggest that this wood had not been de-barked prior to charring or had been incompletely de-barked. Alder wood inner bark turns red on exposure to air. The outer bark of the alder is green beneath the black skin of bark. These colors carry over through the wood charring process and are acetone extractable. Alder inner bark once having been used to tint oil varnishes red in color.

The work on oil of creosote extraction looks at the “moist-burning” properties of a black powder. Alder or buckthorn alder charred at temperatures not exceeding 320 C retain almost all of the creosote created by the destructive distillation of the wood. When the charring temperature is allowed to rise above 320 C the oil of creosote will be flashed off and exit the retort through the vent pipe.

The oil of creosote content of the charcoal is the secret to a so-called “moist-burning” black powder.

So while the KIK powder was prepared with an alder charcoal, the charcoal had been made at a high charring temperature. Compared to the Swiss sporting powder charcoal, the alder charcoal used in the KIK powder had been “over-burnt”, using 19th century terminology.

If Swiss powder is subjected to acetone leaching, and then dried. It will loose totally the desired “moist-burning” property. The loss of the oil of creosote will have utterly no effect on velocities in the gun. It will simply be the difference between “moist” bore fouling and dry bore fouling. The presence of the oil of creosote yields some water as a product of combustion.

Loading density.

Loading density is the relationship between the volume of a charge versus the weight of the charge, expressed as grams per cubic centimeter (g/cc).

Each powder manufacturer has their own idea as to what is a suitable loading density in a black powder.

The volume to weight relationship in a black powder is established at two points in the powder-making process. The first point is at the powder press. The degree of compacting of powder cake from the wheel mill. The second point is in the polishing barrel where large amounts of powder are tumbled for varying periods of time in a large rotating wooden barrel. Rounding of grain edges and a smoothing and compacting of grains' surfaces increase the loading density of the finished powder.

Using an adjustable volume powder measure (Treso brand) calibrated to throw 100 grains weight of water at the 100 setting. Weighing on a Lyman 500 beam balance loading scale.

KIK 3Fg.

- (1) 93.1 grains = 0.931 g/cc (0.93 g/cc)
 - (2) 91.8 grains = 0.917 g/cc (0.92 g/cc)
 - (3) 95.0 grains = 0.951 g/cc (0.95 g/cc)
 - (4) 93.6 grains = 0.937 g/cc (0.94 g/cc)
 - (5) 93.3 grains = 0.934 g/cc (0.93 g/cc)
- Ave. = 0.926 g/cc (0.93 g/cc) with 0.034 g/cc range in results.

GOEX 3Fg, 98MA09B

- (1) 96.2 grains = 0.962 g/cc (0.96 g/cc)
 - (2) 96.3 grains = 0.963 g/cc (0.96 g/cc)
 - (3) 95.6 grains = 0.956 g/cc (0.96 g/cc)
 - (4) 95.0 grains = 0.950 g/cc (0.95 g/cc)
 - (5) 96.5 grains = 0.960 g/cc (0.96 g/cc)
- Ave. = 0.958 g/cc (0.96 g/c) with 0.007 g/cc range in results.

Elephant 3Fg, Lot S-10, Date Code 22/00

- (1) 104.6 grains = 1.046 g/cc (1.05 g/cc)
 - (2) 104.7 grains = 1.046 g/cc (1.05 g/cc)
 - (3) 104.5 grains = 1.045 g/cc (1.05 g/cc)
 - (4) 105.1 grains = 1.051 g/cc (1.05 g/cc)
 - (5) 105.2 grains = 1.052 g/cc (1.05 g/cc)
- Ave. = 1.048 g/cc (1.05 g/cc) with 0.006 g/cc range in results.

KIK 2Fg

- (1) 92.0 grains = 0.920 g/cc (0.92 g/cc)
 - (2) 90.9 grains = 0.909 g/cc (0.91 g/cc)
 - (3) 92.1 grains = 0.921 g/cc (0.92 g/cc)
 - (4) 92.0 grains = 0.920 g/cc (0.92 g/cc)
 - (5) 91.1 grains = 0.911 g/cc (0.91 g/cc)
- Ave. = 0.916 g/cc (0.92 g/cc) with 0.012 g/cc range in results.

GOEX 2Fg, 99NO03B

- (1) 98.1 grains = 0.981 g/cc (0.98 g/cc)
 - (2) 96.9 grains = 0.969 g/cc (0.97 g/cc)
 - (3) 97.4 grains = 0.974 g/cc (0.97 g/cc)
 - (4) 98.0 grains = 0.980 g/cc (0.98 g/cc)
 - (5) 98.1 grains = 0.981 g/cc (0.98 g/cc)
- Ave. = 0.977 g/cc (0.98 g/cc) with 0.012 g/cc range in results.

Elephant 2Fg, S-09, Date Code 22/00

- (1) 99.1 grains = 0.991 g/cc (0.99 g/cc)
 - (2) 99.1 grains = 0.991 g/cc (0.99 g/cc)
 - (3) 99.8 grains = 0.998 g/cc (1.00 g/cc)
 - (4) 100.1 grains = 1.001 g/cc (1.00 g/cc)
 - (5) 99.8 grains = 0.998 g/cc (1.00 g/cc)
- Ave. = 0.996 g/cc (1.00 g/cc) with 0.010 g/cc range in results.

Summary of data.

3Fg powders.

- 0.93 g/cc, KIK
- 0.96 g/cc, GOEX, 98MA09B
- 1.05 g/cc, Elephant, Lot S-10, Date Code 22/00

2Fg powders.

- 0.92 g/cc, KIK
- 0.98 g/cc, GOEX 99NO03B
- 1.00 g/cc, Elephant, Lot S-09, Date Code 22/00

Screen analyses (grain sizing).

Generally, 2F is screened; pass 16 mesh, stop 30 mesh.
Generally, 3F is screened: pass 20 mesh, stop 50 mesh.

2Fg powders.

KIK 2Fg, Lot 00.04

35.0% retained on the 20 mesh screen.

65.0% thru the 20 mesh screen.

GOEX 2Fg, Lot 99NO03B

79.2% retained on the 20 mesh screen.

20.8% thru the 20 mesh screen.

Elephant 2Fg, Lot S-09, Date Code 22/00

39.0% retained on the 20 mesh screen.

61.0% thru the 20 mesh screen.

3Fg powders.

KIK 3Fg, Lot 00.04

Trace on the 20 mesh screen.

14.4% retained on the 30 mesh screen.

42.6% retained on the 40 mesh screen.

43.0% thru the 40 mesh screen.

GOEX 3Fg, Lot 99JY20C

Trace on the 20 mesh screen.

70.8% retained on the 30 mesh screen.

26.2% retained on the 40 mesh screen.

3.0% thru the 40 mesh screen.

Elephant 3Fg, Lot S-10, Date Code 22/00.

Trace on the 20 mesh screen.

58.7% retained on the 30 mesh screen.

35.1% retained on the 40 mesh screen.

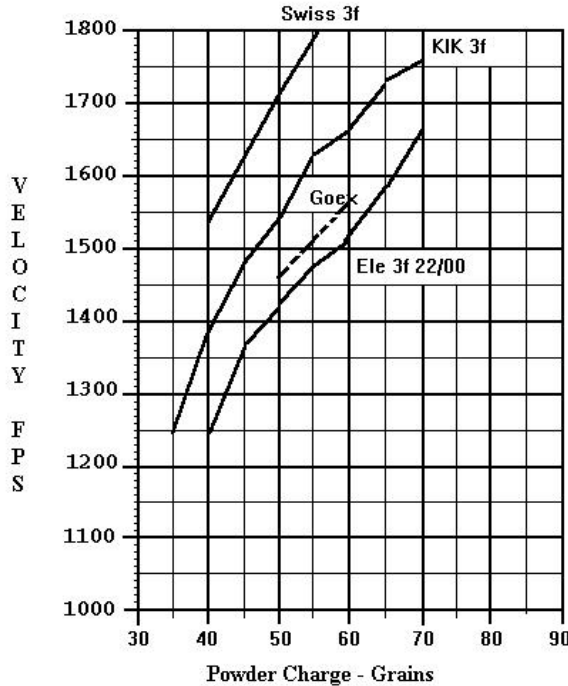
6.2% thru the 40 mesh screen.

In 2F, the KIK is a little finer in grain size, compared to Elephant which is finer than GOEX 2Fg.

In 3Fg, the KIK is considerably finer than the other two brands.

Ballistics.

Test Rifle: TVM Southern Mountain Rifle (Jack Garner built) .45 caliber.
 Flintlock ignition, 31.5" barrel length, 1 turn in 56 inch twist.
 .440 Hornady balls, .020" #40 cotton drill patches.
 Lehigh Valley shooting Patch Lubricant.
 Pact Professional Chronograph, 15 feet from muzzle.



Sept. 22, 2000, Temp 60 F, low R.H.
 35 = 1246 fps ave., ES 170 fps.
 40 = 1381 fps ave., ES 162 fps.
 45 = 1474 fps ave., ES 67 fps.
 50 = 1546 fps ave., ES 27 fps.
 55 = 1627 fps ave., ES 55 fps.
 60 = 1661 fps ave., ES 6 fps.
 65 = 1720 fps ave., ES 30 fps.
 70 = 1766 fps ave., ES 14 fps.

For point of diminishing returns.
 35 -----
 40 = +135 fps.
 45 = + 93 fps.
 50 = + 72 fps.
 55 = + 81 fps.
 60 = + 34 fps.
 65 = + 59 fps.
 70 = + 46 fps.

The lowest ES was found at 60 grains (volume charge) in the .45 caliber bore. The increase in velocity between 55 grains and 60 grains shows the point of diminishing returns to be between 55 and 60 grains. The ballistic graph line shows the KIK powder to exhibit a rifle powder burn rate, slightly “stronger” than GOEX rifle type powder.

Bore fouling with the KIK was a bit less than that found with GOEX or Elephant. Typical with an alder wood charcoal, compared to the charcoal used in the other two brands of black powder.

This KIK 3Fg did not, however, produce tight groups on targets. In a string of 5 shots there would always be one or two “flyers”.

This performance would be typical with a powder made to a low density and only lightly polished.

2Fg powders.

Test rifle: Lyman (Investarms) Trade Rifle, .50 caliber, percussion ignition.
.490 Speer balls, .020" #40 cotton drill patches.
Lehigh Valley Shooting Patch Lubricant.
CCI #11 Magnum percussion caps;
Pact Professional Chronograph, 15 feet from muzzle.
Temp. 55 to 60 F, 45% R.H.
Charges by volume measure.

KIK 2Fg.

40 = 1085 fps ave.
60 = 1339 fps ave.
80 = 1553 fps ave.

GOEX 2Fg, 99NO03B.

40 = 967 fps ave.
60 = 1214 fps ave.
80 = 1371 fps ave.

Swiss 2Fg, 001,111.199

40 = 1242 fps ave.
60 = 1481 fps ave.
80 = 1667 fps ave.

	<u>Elephant 2Fg</u>	<u>Lot 049</u>	<u>Lot 045</u>	<u>S-09</u>	<u>S-10</u>
		25/99	25/99	22/00	22/00
40 =		1095 fps	1046 fps	997 fps	1000 fps
60 =		1291 fps	1281 fps	1181 fps	1214 fps
80 =		1460 fps	1480 fps	1351 fps	1391 fps

This KIK “sporting” powder has proven to be a marketing failure. GOEX began shipping in June 2000 from the 26 thousand pound container imported from Slovenia. Two years later there are still supplies of it in the hands of GOEX master distributors. The KIK “sporting” powder was priced roughly \$1 per pound below the price of GOEX’s black powder. Putting it in direct competition with Elephant black powder. The KIK powder was both faster and cleaner-burning compared to Elephant and GOEX black powders. The simple lack of inherent accuracy killed it on the market.

KIK-Kamink is presently pushing large amounts of cheaply priced black powder into the European market in an effort to generate a profit. Something the plant has not done during the past 2 years. It would at this time appear that any dealings between GOEX, in the U.S., and KIK-Kamink are a thing of the past. KIK-Kamink is now trying to interest at least one U.S. powder distributor into importing their powder into the U.S. The U.S. based Elephant Black Powder Company. Unfortunately, KIK-Kamink’s past relationship with GOEX, Inc. will prevent their re-entry into the U.S. market.

This paper had been prepared in 2002. After GOEX brought in the container of KIK “rifle “powder in May of 2000 that appeared to be the end of GOEX’s relationship with the powder plant in Slovenia. Which proved to be the case.

But in importing the KIK powder into the U.S. GOEX set the stage for something that would cost them some of their profits.

GOEX had long supplied Estes Industries with black powder for use in model rocket motors. GOEX claims that all of the black powder they had imported from KIK, in Slovenia, had been sold to fireworks powder customers. No doubt Estes had been shipped KIK powder while GOEX was trying to get the black powder plant near Minden, LA up and running. In 2002 we again see containers of KIK made black powder arriving in the U.S. and Estes was not the only company importing it.

2001	None entered the U.S. from Slovenia.
2002	November 33,000 pounds at \$2.85 per pound, landed duty paid value.
2003	June 34,375 pounds at \$2.88 per pound, landed duty paid value.
2004	May 34,375 pounds at \$2.67 per pound, landed duty paid value.
	August 34,045 pounds at \$2.76 per pound, landed duty paid value.
	November 29,414 pounds at \$3.54 per pound, landed duty paid value.
2005	January 34,375 pounds at \$2.49 per pound, landed duty paid value.
2006	January 36,401 pounds at \$2.54 per pound, landed duty paid value.
2007	April 23,971 pounds at \$4.00 per pound, landed duty paid value.

The November 2004 container and the April 2007 container were imported by Western Powder Company. One of GOEX’s master distributors. These two containers were rifle powder packed in tin cans at the KIK plant. The other containers represent bulk packaged powder ordered by Estes Industries for in-house use in model rocket motors.

The January 2006 shipment to Estes was their last order to the KIK plant in Slovenia. GOEX recovered that business by lowering the price of their powder to Estes Industries.

In the data we see a pattern. GOEX brought in the container of KIK rifle powder in 2000. Western Powder brings in a container in 2004 and then again in 2007. When it takes you 3 to 4 years to sell a container of black powder to black powder shooters it does not speak highly of that particular powder. Especially when one considers that it is sold at a price below that of GOEX powder.