POTASSIUM BENZOATE IN FIREWORK

Introduction

Potassium benzoate is a white powder is commonly utilized as a fuel in whistle compositions, rockets and burst compositions. A white solid that is the potassium salt of benzoic acid. Potassium Benzoate is manufactured primarily for food and beverage use.
Used with potassium perchlorate to make whistle compositions.
People often think that whistles are produced mechanically in fireworks but this is not the case. The first whistles were made in the 19th century and consisted of potassium picrate. Carefully compressed into a short tube, this chemical produces a very shrill high pitched whistle and a stream of sooty smoke. But it is not pleasant to handle. Gallic acid was then used in the early 20th century, but problems with sensitivity to friction and impact also stopped its use. **Whistles are now made with potassium benzoate, which is related to gallic acid but slightly more stable.**
Benzoate whistles can be modified in such a way that instead of whistling, they sound like someone breaking wind. This is done by changing the burning speed and allowing the gas to escape through a smaller hole.

Applications

1 Potassium benzoate is commonly utilized as a fuel in whistle compositions, rockets and burst compositions.

2 Potassium benzoate spray dried is widely used in whistling rockets due to its free flowing characteristics and extra dry nature which is ideal for use in fireworks.

Benefits

1 Safe (Approved for food contact applications).

2 Potassium benzoate is non-hazardous.

3 It is not expected to present significant health risks to the workers who use it.

4 neutral ph, so safe for environment.

5 ensures complete burn due to presence of Organic Benzoates which act as fuel unlike other inorganic salts which pollute the air.

The following components were mixed and the resulting powdery composition (a "white powder") inserted into the rocket motor tube using the funnel and rammer procedure described above.
A. 60 parts of potassium perchlorate.
B. 40 parts of potassium benzoate.
C. 10 parts of biphenyl.
The following examples of white powder compositions were mixed and filled by the procedure of Example 1:
EXAMPLE 2
A. 60 parts of potassium perchlorate.
B. 40 parts of potassium benzoate.
C. 10 parts of naphthalene.
EXAMPLE 3
A. 60 parts of potassium perchlorate.
B. 40 parts of potassium benzoate.
C. 10 parts of 2-methoxynaphthalene.
EXAMPLE 4
A. 55 parts of potassium perchlorate.
B. 5 parts of potassium nitrate.
C. 40 parts of potassium benzoate.
D. 15 parts of biphenyl.
EXAMPLE 5
A. 45 parts of potassium perchlorate.
B. 15 parts of potassium nitrate.
C. 40 parts of potassium benzoate.
D. 1 part of diphenyl methane.
EXAMPLE 6
A. 45 parts of potassium perchlorate.
B. 25 parts of potassium nitrate.
C. 30 parts of potassium benzoate.
D. 5 parts 2-hydroxybiphenyl.
E. 1 part of silica flow aid.
EXAMPLE 7
A. 50 parts of potassium perchlorate.
B. 20 parts of strontium nitrate.
C. 30 parts of potassium benzoate.
D. 5 parts of naphthalene.
E. 1 part of silica.
EXAMPLE 8
A. 45 parts of potassium perchlorate.
B. 25 parts of potassium nitrate.
C. 30 parts of potassium benzoate.
D. 4 parts of 2-hydroxybiphenyl, sodium salt.

The oxidiser and the Potassium Benzoate burn together, one layer at a time, and is slower than the speed of sound. This emits the gases produced in spurts in the empty half of the narrow tube, which vibrates and thus makes a whistling sound.

Potassium benzoate is an occasionally used fuel in pyrotechnic whistle composition. It is useful as a direct replacement for whistle fuels that contain sodium when the bright yellow flame produced by those fuels would be detrimental to the intended effect.

Specifications

Test	Specification	Test Method
Appearance	Form: Fine powder free of visible impurities Colour: White	Visual
Purity (On K contain basis)	> 99 %	Flame Photometer
Acidity/alkalinity	1 gm requires max 0.2 ml of 0.1 N NaOH/HCL solution	Titration
Moisture Content	< 1.5 %	Oven Drying at 105 Deg C

Product FDA Status

Potassium Benzoate is approved for use in food contact polymer as per the following chapter headings.

Title	21 - Food and Drugs
Chapter	I - Food and drug administration, department of health and human services
Sub Chapter	B - Food For Human Consumption (CONTINUED)
Part	177 - Indirect Food Additives: Polymers
Sub Part	B - Substances for Use as Basic Components of Single and Repeated Use Food Contact Surfaces
Section	177.1210 Closures with sealing gaskets for food containers.

Trigon Chemicals Pvt.Ltd.

722/AB/15 "Nirmal", Laxmi Park Colony, Navi Peth, Pune 411030. India.
Phone: +91 9922922875 , +91-20-24530071 / 24530110
Email: aditya@trigon-chemie.com **Website:** www.trigon-chemie.com

Polymer Add Pte.Ltd.

Singapore
77 A, Boat Quay, Singapore 049865,
Phone: +6563272490
Email: contact@polymeradd.sg **Website:** www.polymeradd.sg

Polymer Add Pvt.Ltd.

Thailand
88/31 Baan Klang Suan Moo.2, T.Takiantia A.Banglamung, Chonburi 20150, Thailand.
Phone: +66979238318 / +66979248318
Email: contact@polymeradd.sg **Website:** www.polymeradd.sg

Polymer Add Pte.Ltd.

Philippines
Philippines Representative Office
Phone: +63-9956581136
Email: iris@polymeradd.sg **Website:** www.polymeradd.sg

DR. J. PHARMACHEM PVT. LTD.

722/AB/15 "Nirmal", Laxmi Park Colony, Navi Peth, Pune 411030. India.
Phone: +91 9922922875 , +91-20-24530071 / 24530110
Email: sales@jpharmachem.com **Website:** www.jpharmachem.com