Barium/Aluminum alloy 55/45 Grade PA

Article Number 451210

CAS-No. 7440-39-3 Barium
7429-90-5 Aluminum

Typical Properties

Formula:	$BaAl_4$
Form and Color:	powder, grey

Applications

Barium Aluminum alloy is mainly used for the production of evaporation getters (gas absorbers) used in CRT's (cathode ray tubes) for television and other monitors to generate and to maintain high vacuum by reaction with noxious gases. It is also used in emitter tubes and surge arresters. Barium Aluminum alloy powders find also application in various pyrotechnic areas. They are a source of heat for squibs and ignition devices for a variety of uses.

Characteristics

Highly flammable solid.
Contact with water liberates highly flammable gases!

A silvery white to light gray alloy powder, stable in dry atmosphere, well storable and easy to handle. It is flammable but reacts with oxygen and nitrogen only at elevated temperatures. In form of lumps and pieces the alloy reacts slowly with water or alcohols developing hydrogen. Finely ground material reacts violently, and presents a dust explosion hazard.
Heat of reaction (EKVI code, calculated): 16,078 J/g
Heat of reaction (30 bar, O_2, measured): 13,690 J/g
Heat of reaction ($BaAl_4/KClO_4$ 55/45, measured): 7,349 J/g
compared to:
$Ti/KClO_4$: 6,245 J/g
$Zr/KClO_4$: 5,872 J/g

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Typical Analysis

Ba + Al (incl. Sr)	min.	97.5	%
Ba (incl. Sr)	min.	53.0	%
Al	min.	42.5	%
Sr	max.	0.75	%
Fe	max.	0.2	%
Ca	max.	0.2	%
Si	max.	0.1	%
N	max.	0.05	%
C	max.	0.1	%
Mg	max.	0.02	%
Cl	max.	0.01	%
Mn	max.	0.01	%
Particle Size	min.	99.5 % < 45 µm	
Apparent Density		0.8 – 1.2 g/cm^3	
Specific Surface (BET)		0.9 – 1.3 m^2/g	

Recommended Test Methods

Barium gravimetrically and gas volumetrically; impurities by spectral analysis and special analytical procedures

Handling

Handling in dry air possible without hydrolysis; dry storage required; shelf life unlimited if the package is tightly sealed. Protect very fine powder against atmospheric humidity in order to preserve the getter capacity; in case of fire cover with sand, never use water.
MAK value (1990): 0.5 mg/m^3 ref. to Ba.
See our material safety data sheet!

Packaging

Tin cans of up to 5 kg capacity. Other packaging sizes on request.

Transport Classification

GGVE, GGVS, RID, ADR:	class 4.3, fig. 11 b)
IMDG-Code:	class 4.3 UN-No. 1393 PG.II
ICAO:	class 4.3 UN-No 1393 PG.II/Drill-Code 4W

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