KEMIX A

Product information 2.7.2004

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Replaces:

1. Product description and use

Kemix A is suited for all kinds of quarrying and land clearing. Because of it's excellent water resistance and specific weight it is suitable for blasting bobs, in which the explosive is exposed to water.

The explosive used in Kemix A is a water-in-oil -emulsion. It's form of existence is liparoid and it's colour is metallic grey (Kemix - white or yellowish). In the product, ammonium- and sodiumnitrate are saturated in aqueous solution. The nitrate-bearing aqueous solution is mixed into small drops, surrounded by a thin oil layer.

2. Packages

Kemix is packed into an enduring plastic cartridge. The ends of the cartridge are closed with metal clips.

Name	Diameter/ mm	Length/ mm	Weight/ g	kg (net weight)/ box
Kemix A 25x260	25	260	145	25
Kemix A 32x530	32	530	530	25
Kemix A 36x530	36	530	670	25
Kemix A 40x530	40	530	830	25
Kemix A 50x530	50	530	1250	25
Kemix A 55x530	55	530	1560	25
Kemix A 60x530	60	530	1800	25
Kemix A 65x530	65	530	2100	25
Kemix A 70x530	70	530	2500	25
Kemix A 75x530	75	530	2800	25
Kemix A 90x530	90	530	4200	25

Transport classification	
RID/ADR	1.1D, section 4 Blasting Explosive, type E
IMDG	1.1 D
UN nro	0241

Raw material	Kemix (special product)	Kemix A
Ammonium nitrate	O; Xi R8 -38	O; Xi R8 -38
Sodium nitrate	O; R8	O; R8
Water	x	x
Oil	x	x
Emulsifers	x	x
Microballs	(x)	(x)
Powdered aluminium	-	F; R15-17

3. Explosion technical features

Specifications	Unit	Kemix (special product)	Kemix A
Density	kg/dm3	1.2	1.2
Velocity of detonation**	m/s	> 4800	> 4800
Transmission**	cm	> 4	> 4
Typical values			
Transmission**	cm	8	8
Velocity of detonation**	m/s	5100	5100
Explosion heat*	MJ/kg	3.2	3.8
Gasvolume (NTP)*	l/kg	950	920
Power/unit weight (S)*		86 (Anfo 100)	96 (Anfo 100)
Initiation sensitivity			
Detonator sensitivity		detonator sensitive to -20˚C	detonator sensitive to -25˚C
Detonating cord		not recommended	not recommended
Max depth in water	m	Tested 20***	Tested 25

* Cheetah 2.0 (theoretical), ** in free space, Ø 32 mm, *** sensitized with microballs 50m

4. Main raw materials and their hazard clauses

Raw material	Kemix (special product)	Kemix A
Ammonium nitrate	O; Xi R8 -38	O; Xi R8 -38
Sodium nitrate	O; R8	O; R8
Water	x	x
Oil	x	x
Emulsifers	x	x
Microballs	(x)	(x)
Powdered aluminium	-	F; R15-17

5. Storage and weather resistance

The oil layer surrounding the nitrate solution makes the explosive in the Kemix-cartridges completely insoluble to water. The initiation sensitivity of the Kemix A-cartridges decreases when the temperature decreases. They can be initiated reliably with the detonator until the temperatures presented in section 3. The decrease of the temperature has a minor influence on the detonation velocity and –transmission of the Kemix A-cartridges.

Kemix A has at least one year's storage life. The product must be stored in a dry and cool place accordingly to the legislation in force.

The initiation sensitivity of the Kemix-cartridges diminishes gradually when they get older. Further ageing of the explosive hardens it locally and crystallizations can found in it or the explosive becomes completely hard. This kind of product may not be used.

6. Handling safety

Kemix A is CE-marked product, which has been found to fill the EU:s safety requirements. The testing has been done by the Notified Body for civil explosives, Finnish Defence Forces Research Center (0812). The products has to fill for instance the following minimum requirements describing handling safety:

Test	Requirement	PvTeknTL's results
Sensitivity to impact (BAM)	≥ 2 J	? J
Sensitivity to friction (Julius Peters)	≥ 80 N	> ?? N
Thermal stability	75 °C, 48 h (no reaction)	OK

Highly refined mineral oil is always used, which is denotation free (Concawc-report 95/59) and which flash point is high and evaporability is low. Emulsifiers are substances used by the food and/or cosmetics industry. Instead of microballs, usually inert gas mixed in an emulsion is used.

Although the most harmless raw material is used, it is recommended to avoid continuous skin contact by using gauntlets. If the explosive gets on the skin, first remove it mechanically and then wash it away with water and soap.

In case thE substance gets into the eyes, rinse with lots of water. Contact the doctor if the irritation continues.

Dungarees and other work clothes, which has been exposed to explosives, can catch fire. Dungarees are washed with normal wet cleaning.

7. Environmental impact

In an emulsion explosive oxygen-giving (nitrates) and burning (oils) substances share a very large contacting surface and the manufacturing technique is very precise. That is why the explosion gases are relatively clean. However, small amounts of carbon monoxide and nitrogen dioxide are always released. The water-resistance of the emulsion explosives is excellent. Even after being in water for a long time Kemix A explodes reliably. All the unexploded or otherwise remaining explosives on the ground dissolve gradually into water with a result that the nitrates and oil end up in nature. Nitrate has an overfertilizing effect on the water system and it soils ground water. Oil can cause long-term ill-effects in the water environment and create a pollution risk for the ground and ground water. With careful and tidy charging work and by following directions the environmental effects can be minimized

If the blasting work is done in closed space, under the ground level, ditches or places where hazardous explosion gases can accumulate, it is not allowed to go to blasting area before the explosion gases are diluted (e.g. by ventilation) so much that they will not cause risk to health

8. Instructions for the use

Kemix A-cartridges can be used to all kinds of quarrying as a base- and column charge. Kemix A-cartridges are recommended for underground blasting because of their clean explosion gases. Their high detonation velocity makes them good boosters for insensitive explosives (Anfo, Kemiitti). Kemix A-cartridges can be initiated reliably with the detonator (the amount of explosive, about 1 g) until the temperature mentioned in section 3. The use of detonating cord to initiate (or ensure the continuous detonation) the Kemix A is not recommended. The result of using detonating cord can be dead pressing of the explosive.

The cartridges can be loaded directly to water-filled blastholes. In deep downward blastholes where there is a small amount of water on the bottom, the cartridges might spread on the water surface and prevent the explosive to sink to the bottom of the blasthole. An over 10 meters vertical free fall increases even more the risk described above. When loading such a bore hole it is recommended that the cartridges would be lowered to the hole with a string or something comparable, until the cartridges reach the water surface. Kemix A can be used to underwater quarrying. Before using Kemix A in deeper water conditions than 25 m, it is recommended to contact the manufacturer first. When Kemix A is used in water-filled blastholes the cartridges must be pushed closely together to ensure the continuing of the detonation.

Contaminated Kemix A-cartridges are destroyed by burning with accessory fuel (wood, paper) following the given authority regulations concerning destruction. Forcit accepts aged explosives for destruction. Returned explosives are not compensated and the costs for the destruction are agreed case sensitively.

Instructions to make reclamation:

If Kemix A is suspected not to work as wanted, please contact Forcit or Forcit's dealer immediately. Please inform us about the following things:

- the dimensions of the product and the date from the package
- the outward appearance of the product and a description of the handling characteristics, surmise of the product
- the conditions and the charging procedure at the blasting site

If the product is not in order, please deliver a sample of the product to Forcit fur further investigations. The sample must be marked properly to ensure right identification.

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