

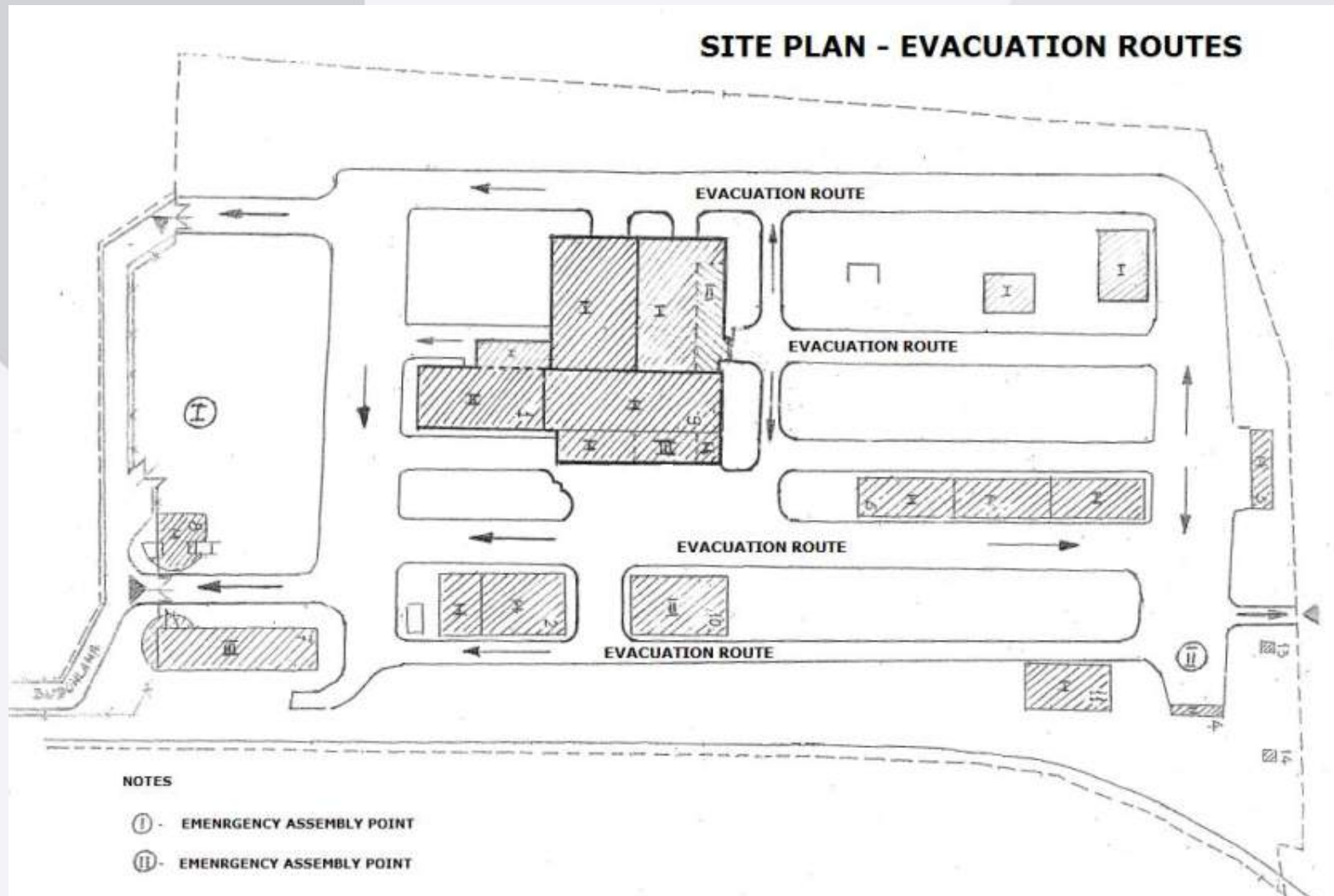
Welcome to Poland



Minova Ekochem

Solutions from materials technology

Evacuation Routs



Safety



Please be aware that certain safety precautions are necessary for your safety and the safety of the plant workers while you are touring Minova Ekochem manufacturing facilities.

While in the plant facilities, you must:

1. Be accompanied by an authorized Minova Ekochem employee who will provide you with a Visitor badge.
2. In the event of an emergency follow your host's instructions who will discuss the evacuation signal and show you where the emergency assembly area is located
3. Wear personal protective equipment provided and the Visitor badge at all times. Personal protective equipment includes glasses and vest. No open toed shoes are allowed in plant areas.
4. No smoking is permitted in the plant at any time.
5. Give right-of-way to all moving equipment.
6. Stay a safe distance from parts and equipment.
7. Avoid contact with raw material and materials in-process.
8. Please consider everything you see and hear as confidential information.

Please have a safe and enjoyable tour.

Three Minova Companies in Poland



- Minova Ekochem (Katowice)
- Carbotech Polonia (Katowice)
- Minova Ksante (Polkowice)

MINOVA in POLAND - Location



-  - copper
-  - coal
-  - zinc
-  - salt

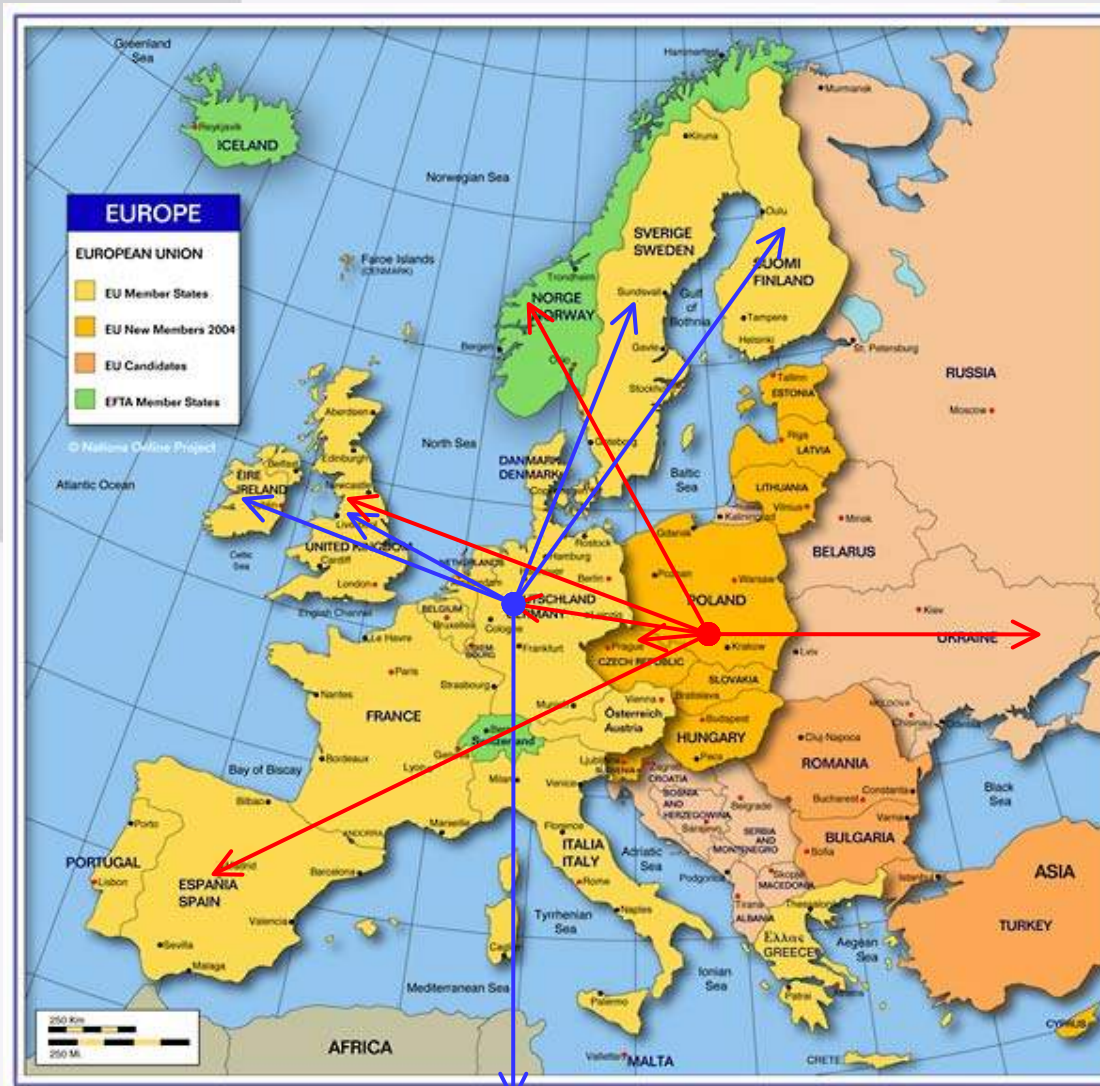


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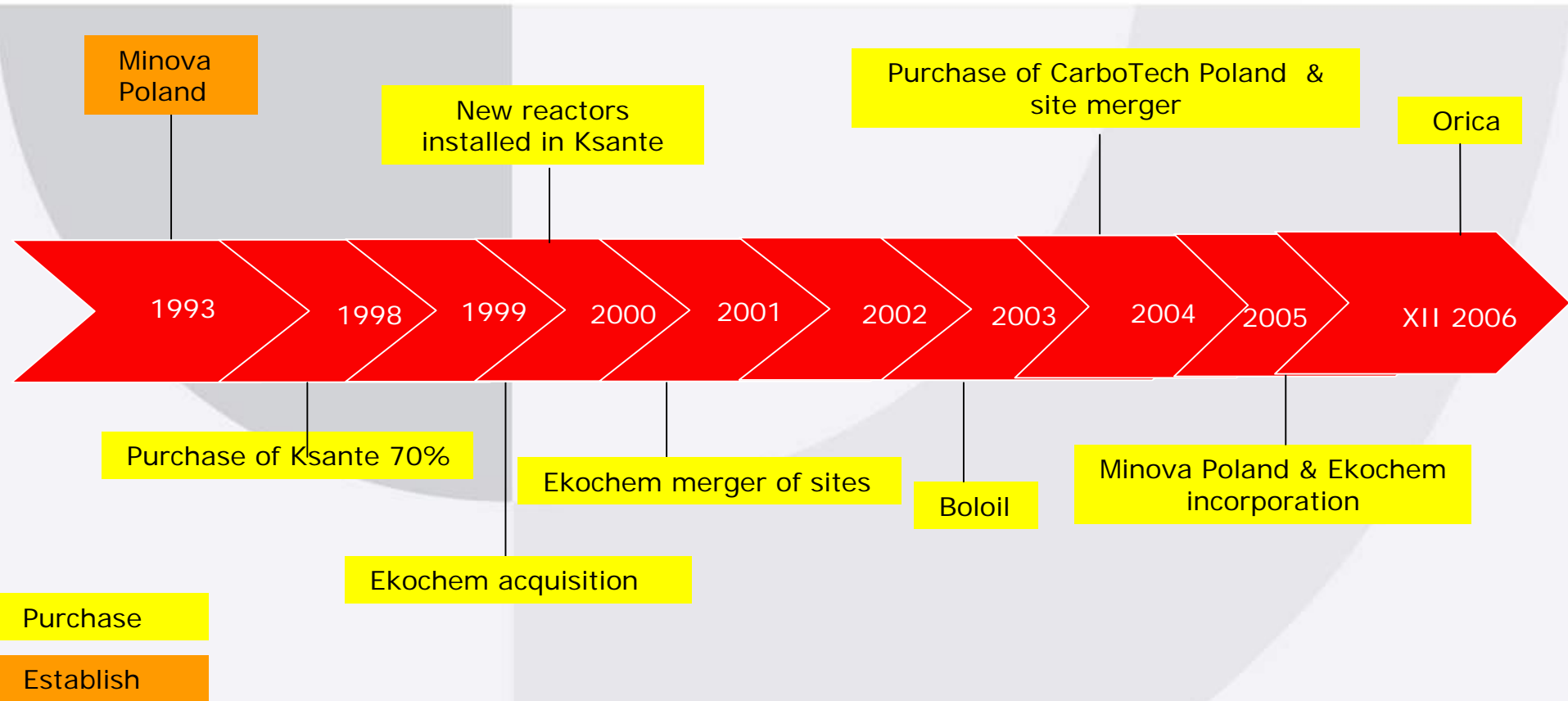
Minova Poland - Market

- Polish coal
- Polish copper & zinc – KGHM, ZGH
- Export –
 - Norway (tunnels)
 - UK – Cleveland Potash
 - Ukraine (coal mines)
 - MCT (Europe - tunnels, UK – coal mines, Sweden – metaliferrous mines)
- Non-mining

Minova Poland - Export



Minova Poland History



Main products from ME site 1



Product name	Annual production	Annual capacity	Patents
Lokset capsules	4 600 000 pcs.	6 000 000 pcs.	
High Yield Grouts (Tekblend/Ekobet, Teksil)	11 000 T	19 000 T	8
Mineral Foams (Durafoam, Ekopiana)	4 700 T		
Shotcrete (Ekotor, CT-2/M, FT-30, Minotor LFT)	1 400 T	10 000 T	
Cement grouts (CT-95, Minotor D, W, S, NP, T)	2 200 T		
Urea-Formaldehyde Foams (Wisof foam/Krylamine)	710 T	3 000 T	1
Phenol-Formaldehyde Foams (Carbofill, Ekoflex)	4 000 T	8 000 T	
Injection systems (Ekopur, Minopur, Minostat, Bevedan-Bevedol Krzemopur, Geoflex)	3 500 T	10 000 T	5
Dust masks	3 500 000	3 600 000	
Filter	2 300 000	2 400 000	

Main products from ME site 2



Product name	Raw Material	Processing		End Product
Lokset capsule - mastic	polyester resin + filler + additives	mixing	packing	capsule
Lokset capsule - hardener	peroxide + filler + liquid	mixing		
High Yield Grouts	cements + fillers + additives	blending		powder in paper bag
Mineral Foams				
Shotcrete				
Cement grouts				
Urea-Formaldehyde Foams – resin component	urea resin + additives	blending		liquid in canister
Phenol-Formaldehyde Foams	phenolic resin + foaming agent + additives	blending		liquid in canister
Hardener for urea and phenol foams	organic and mineral acids	blending		liquid in canister
Injection systems – component A	MDI + additives	blending		liquid in canister
Injection systems – component	polyol or water glass + additives	blending		liquid in canister
Dust masks	preformed mask	completing		final mask

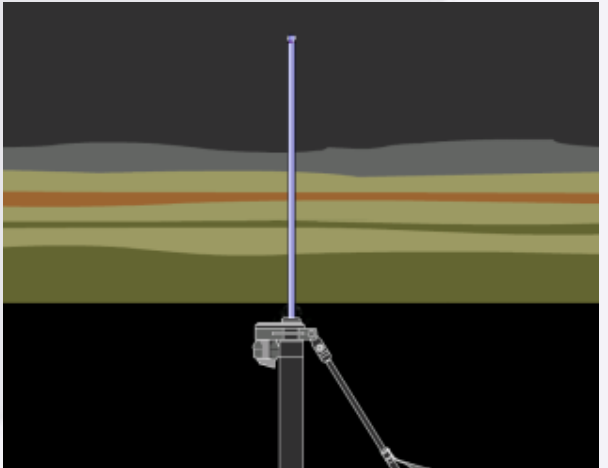
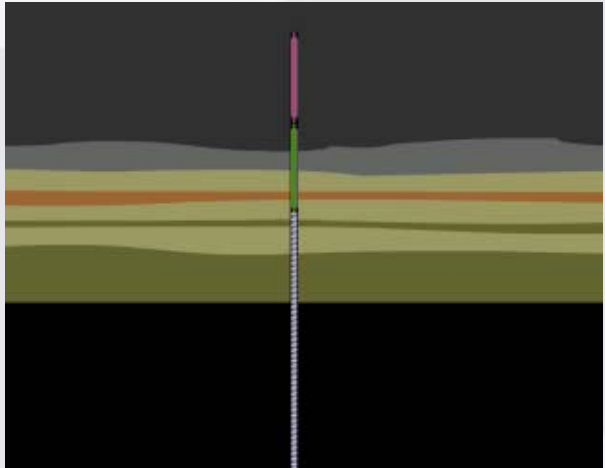
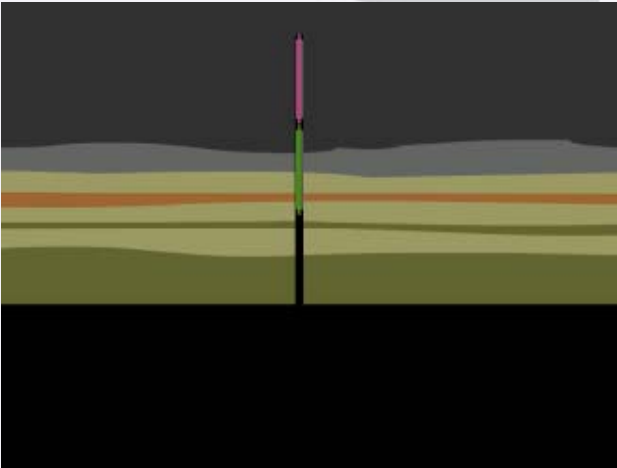
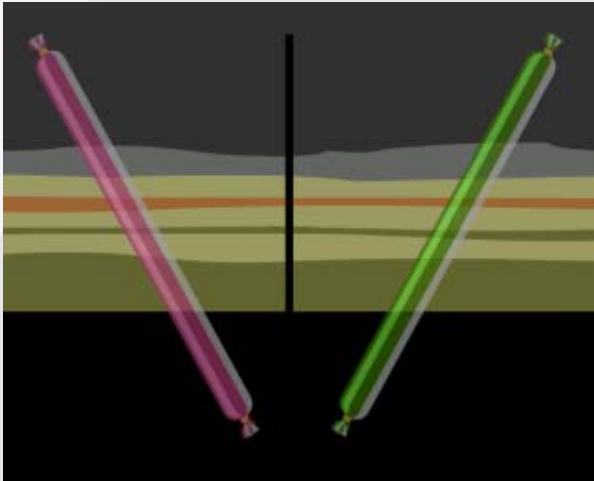
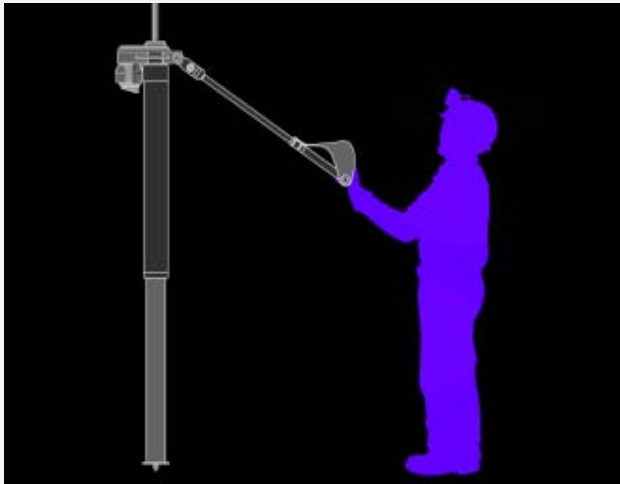
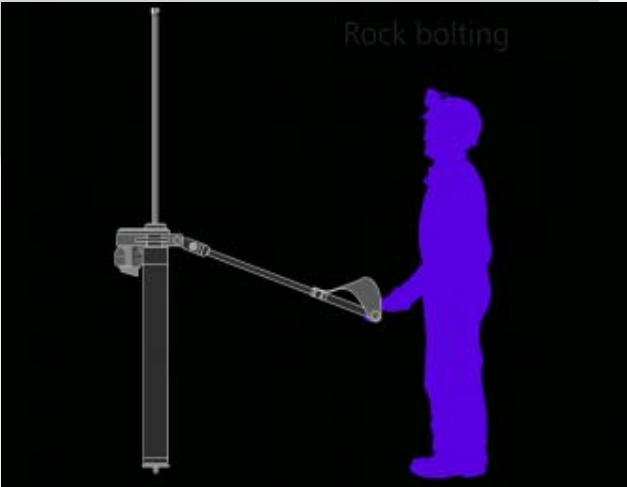
Rockbolting 1

Lokset capsules



Rockbolting 2

Bolting operation



Rock consolidation 1

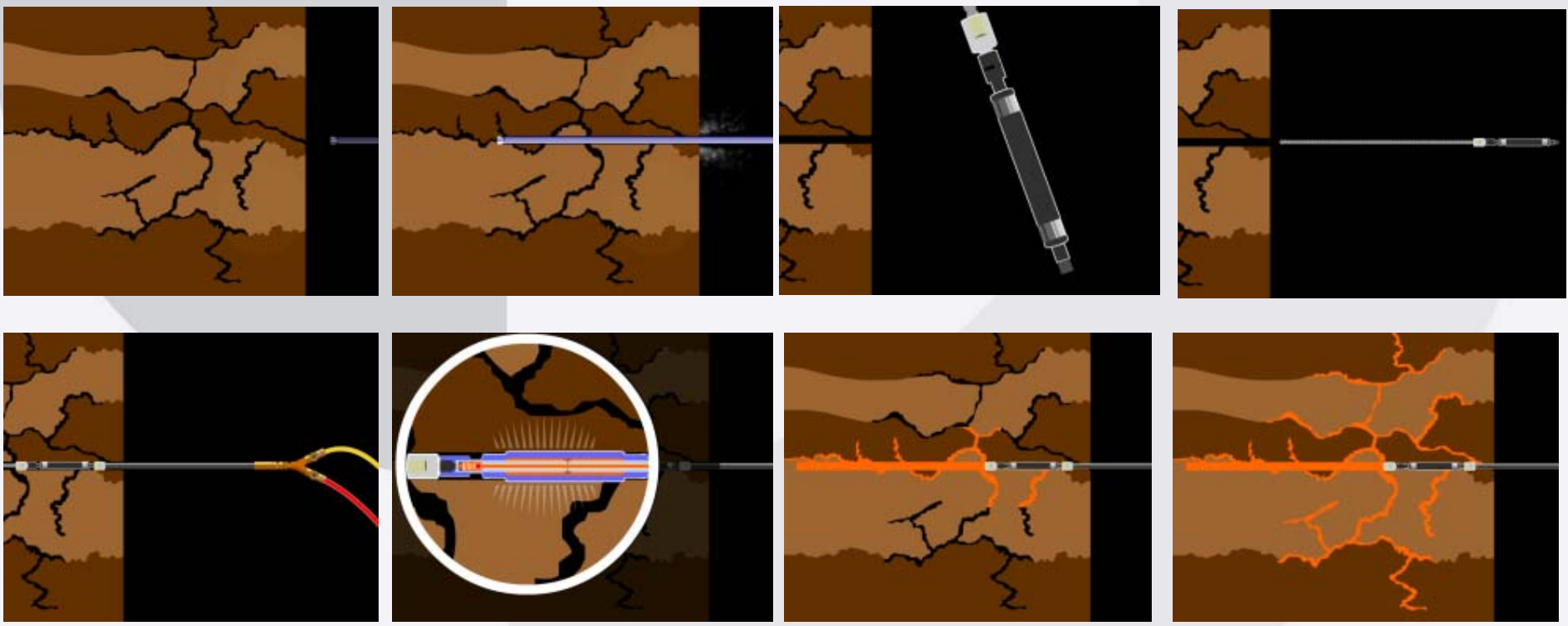
Injection systems



- Isocyanates: polyurethanes & silicates
- Phenolics
- Ureas

Rock consolidation 2

Injection technique

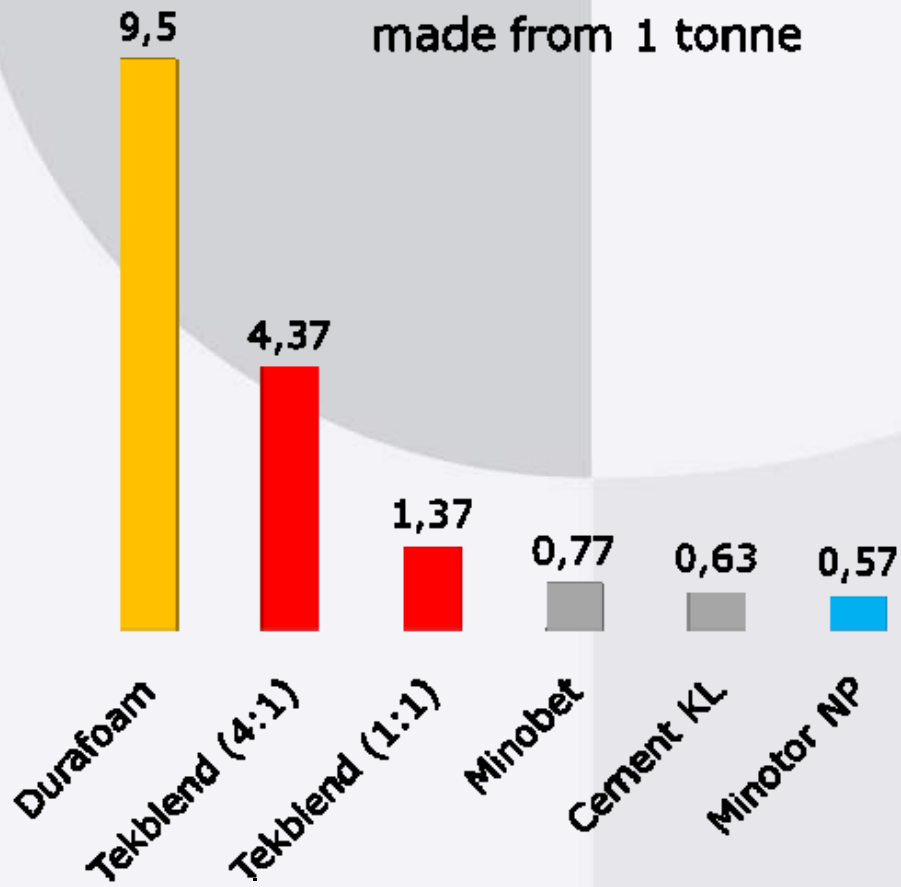


Rock support 1

Tekblend High Yield Grout



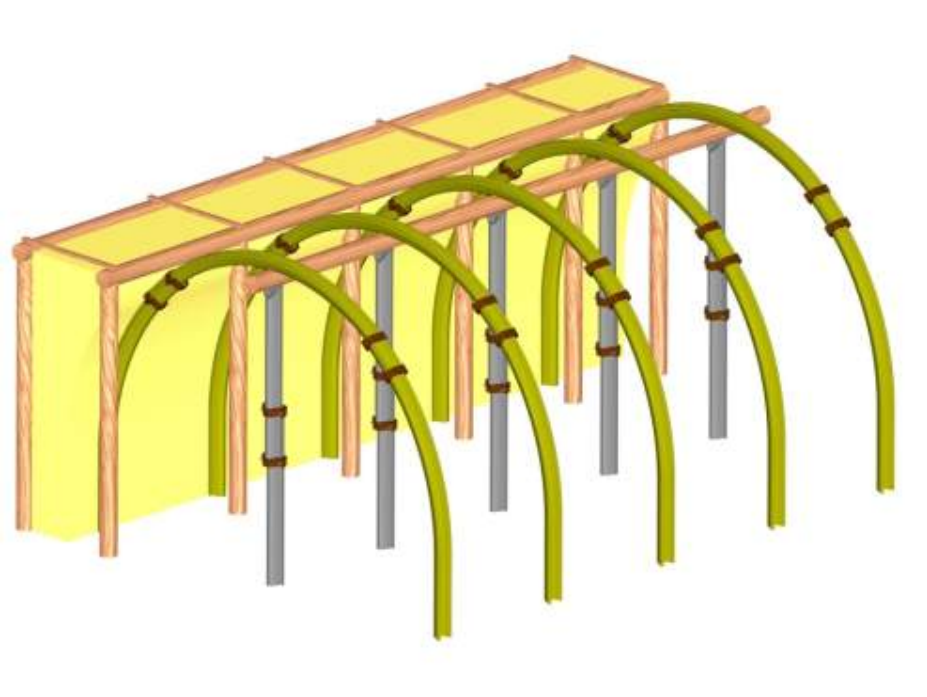
Yield in cubic meters of ready concrete made from 1 tonne



Mono pump

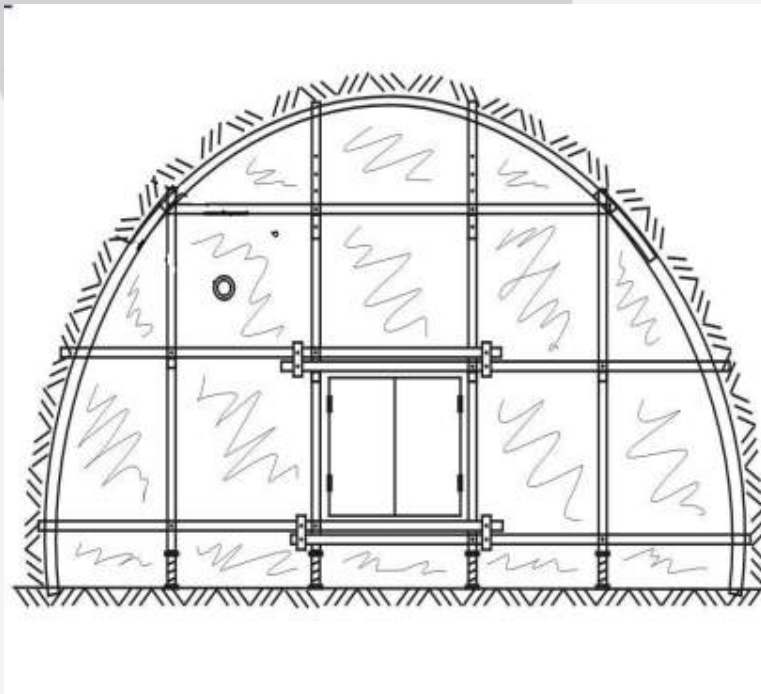
Rock support 2

Monolithic packs



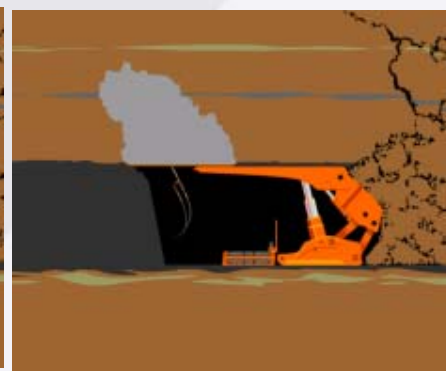
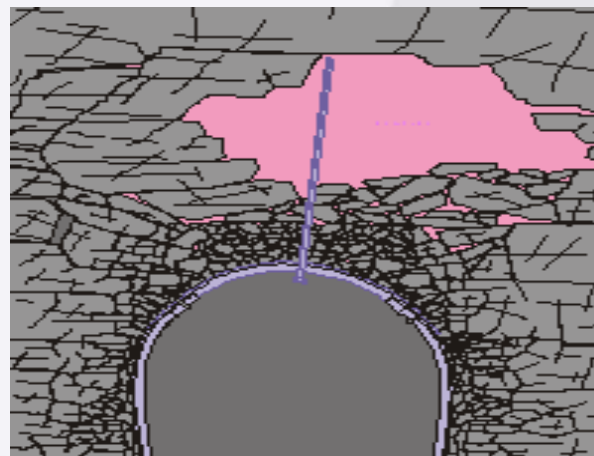
Ventilation 1

Explosion proof barricades; Tekblend



Ventilation 2

Cavity filling – Carbofill/Ekoflex, Durafoam



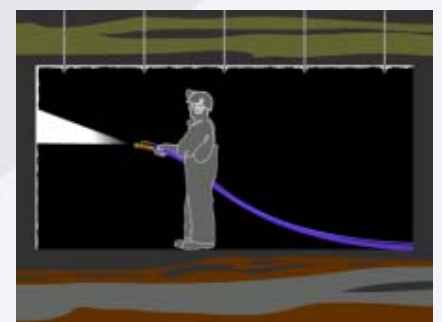
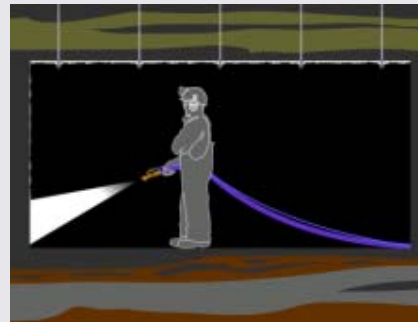
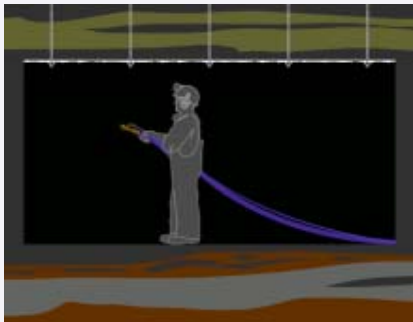
Fire prevention

- Goaf sealing by injection: Geolith
- Goaf sealing by insulation: Krylamin/Wisofoam



Spraying systems

- Mineral shotcrete
 - cement: Ekotor, CT-2/M
 - slag / anhydrite: FT - 30
 - light, porous: Minotor LFT
- Flexible membrane
 - Krzemopur E/S & E
 - Tekflex
- Organic foam
 - silicate foam: Geofoam
 - phenolic foam: Minoterm



CONCRETE REPAIRING SYSTEM

CT-95: CT-A, CT-S, CT-1, CT-2, CT-6, CT-L, CT-P, CT-N



**KATOWICE centre
road tunnel**



**SZCZECIN
sewer shotcreting**



**KATOWICE
drinking water reservoir**

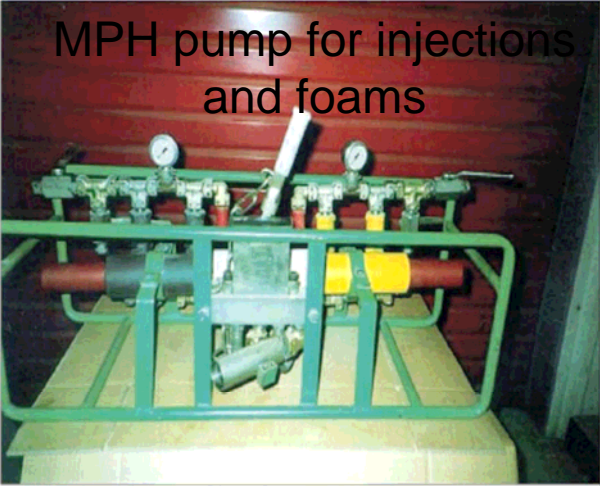
Pumps



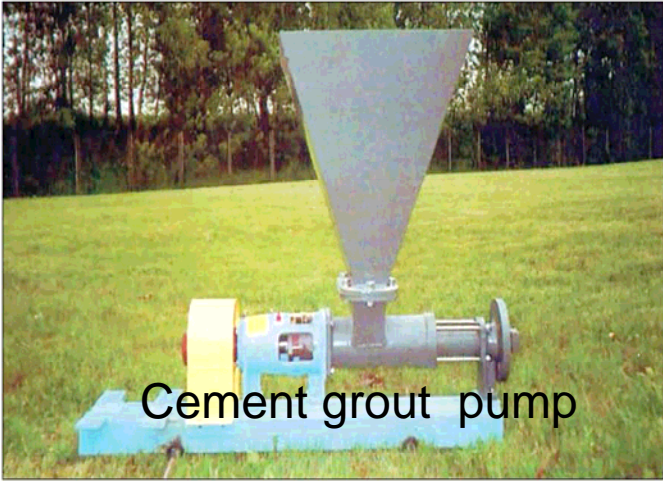
MONO placer



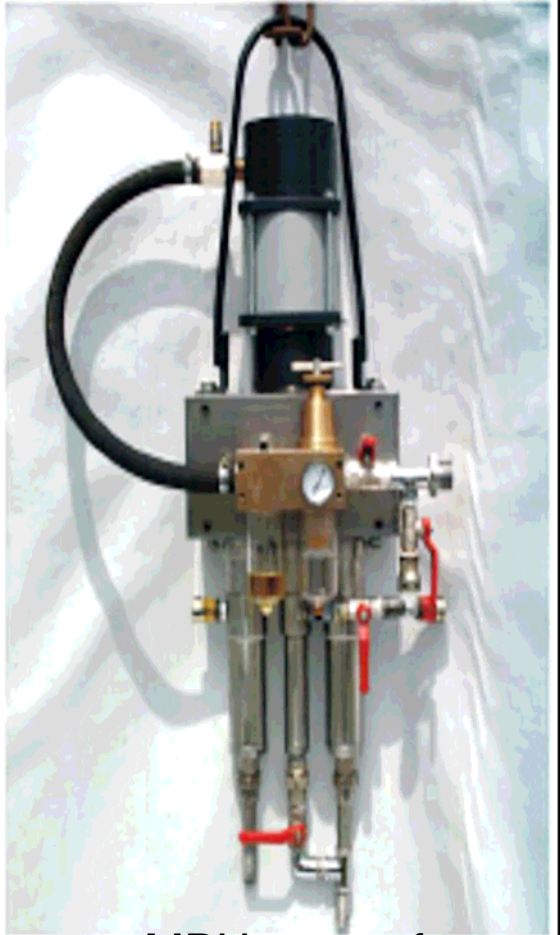
Dry shotcrete pump



MPH pump for injections and foams

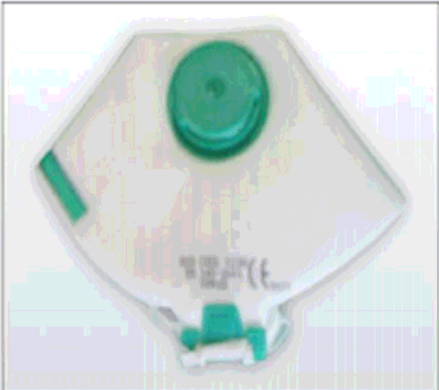
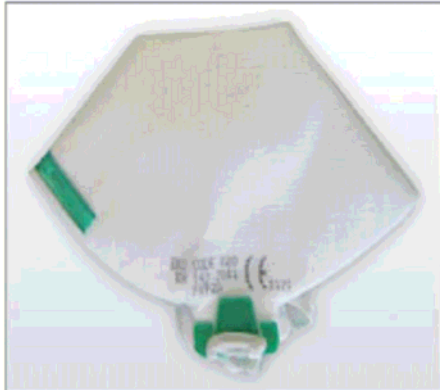
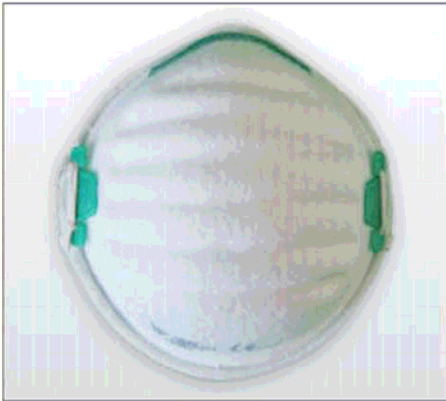


Cement grout pump



MPU pump for organic foams

Filter Masks



Cone - shape

Flat - shape

Minova Ksante



KGHM:

- copper
- silver
- gold
- salt



Minova Ksante

Product Range



Product name	Annual production	Annual capacity
Resin capsules	3 700 000 pcs.	5 000 000 pcs.
Xanthates	1 300 T	1 700 T
Organic solvents based on the Ethyl Alcohol	500 T	1 000 T

ISO Certification



MINOVA EKOCEM and CARBOTECH POLONIA:

- **ISO 9001:2000**

MINOVA KSANTE:

- **ISO 9001 – Quality Management,**
- **ISO 14001 – Environment Management,**
- **ISO 18001 – Safety Management**

Minova Ekochem Plant - what you will see



- R&D Laboratories
- PUR Blending and packaging
- PUR Capsule production
- Resin Capsule production
- Cement Products manufacture
- Phenolic Resin production