

Fire Protection

Safe Pipe Systems in Building's

poloplast 



Generally there are 2 Flammability Classes:

A = Non flammable

B = Flammable

Flammability Class B1
Low Flammability

PVC Pipe (**Halogen**)

Flammability Class B2
Normal Flammability

All PE and PP Types
<< **POLO-KAL NG / 3S**

Flammability Class B3
High Flammability

Wood chip, paper and similar

2. Smoke and Drip Classes



Generally there are 3 Smoke creation and 3 Drip creation Classes:

Smoke creation Q1	Low smoke creation	<< POLO-KAL NG
Smoke creation Q2	Normal smoke creation	<< POLO-KAL 3S
Smoke creation Q3	High smoke creation	
<hr/>		
Drip creation Tr1	Non dripping	<< POLO-KAL NG / 3S
Drip creation Tr2	Dripping	
Drip creation Tr3	Burning drops	



PROTECTION PRINCIPAL FOR PLASTIC PIPES:

If plastic pipes are to be put through fire barriers/fire proof walls or ceilings, then the following criteria should be observed:

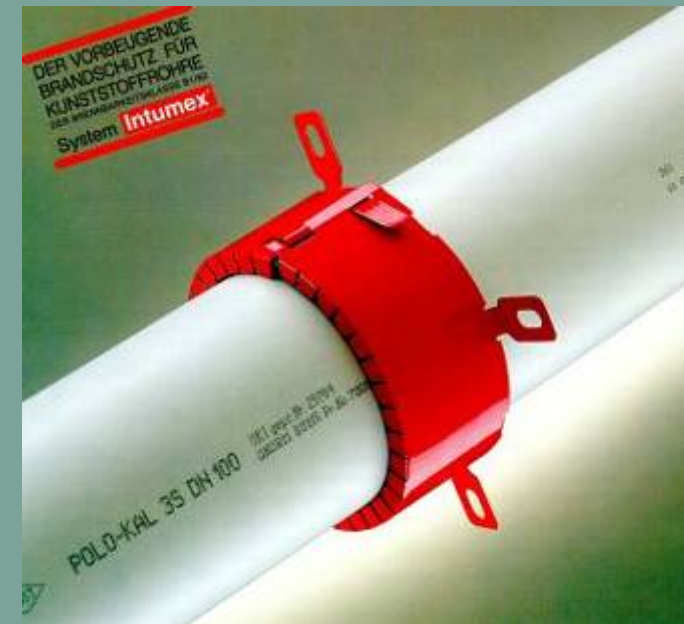
- Prevent the fire burning through the wall or ceiling
- Prevent the the flames penetrating through the wall or ceiling
- Prevent the fire from glowing through the wall or ceiling and therefore transferring enough heat to create a fire on the other side.

= We recommend the use of a fire protection collar!!



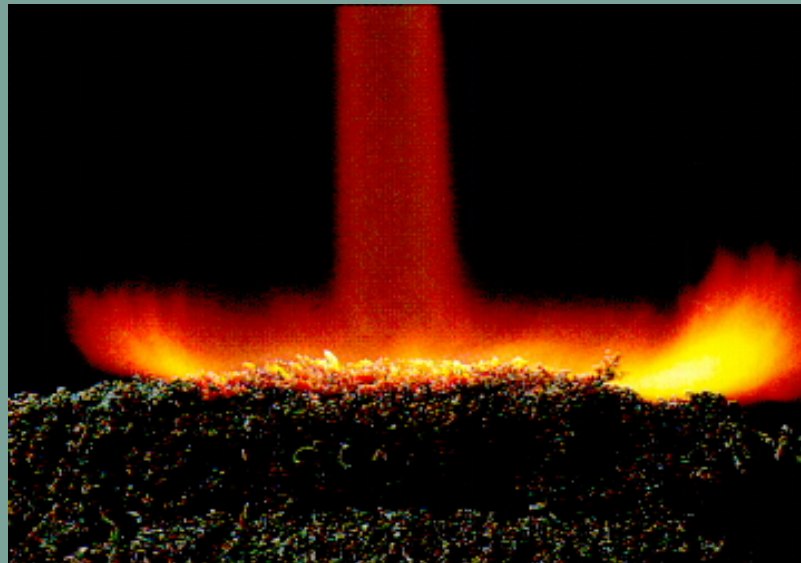
POLO-BSM is used in public buildings, because:

- absolutely insensitive to atmospheric influences
- resistant against weaken acid, lye, paint, etc.
- high expansions-pressure up to 10 bar
- supplementary installation without problems
- easy installation
- maintenance - free
- unlimited storable





The way these fire protection collars work is due to the special characteristics of the layered material used.



In a fire the plastic pipe becomes weak and bends and collapses.

At the same time the fire collar expands when a temperature of around 130°C is reached. This is to a size ten times its original volume. This is until the material is mechanically restrained.

If the possibility to expand is constrained (e.g. the metal holder) then the pressure which can be exerted by this layered material can reach 10 bar expansion pressure.

The layered material of the collar presses on the weakened plastic pipe. Within a few minutes the opening where the pipe was, is completely closed by the collar. The spreading of the flames and the smoke through the hole cut for the pipe is totally stopped.

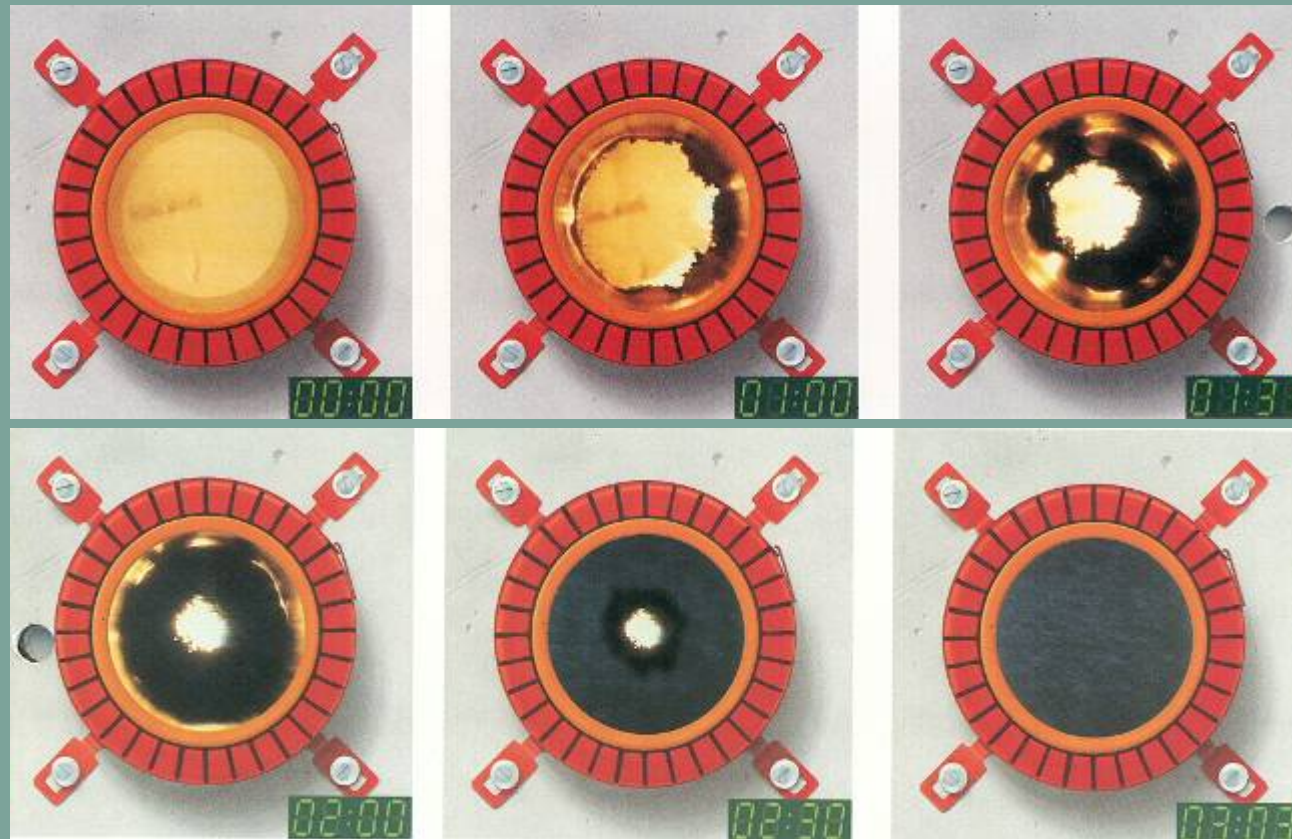


Fire Protection Collar



The following pictures show the very quick way in which the fire collar reacts to high temperatures from a fire.

Time in minutes:





Fire protection collar effectively stops the spread of fire and smoke.



Melting pipe



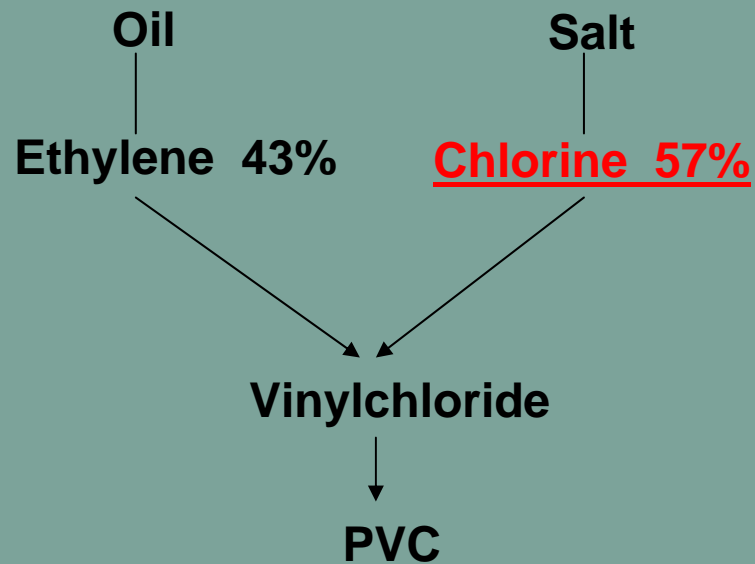
Closed hole

Pictures from inside room where fire is.

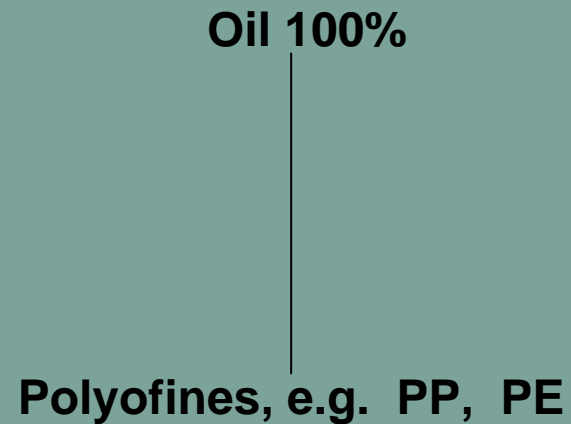


Polypropylen is more enviromentally friendly
in its production as well

Production of PVC



Production of Polyofines





COMPARISON TO PVC



Requirements	PVC	POLO-KAL NG
Hot water resistance	up to 60°C	up to 97°C
Impact strength	SN 2,5	> SN 4
Abrasion resistance	+	+++
Chemical resistance	+ ¹⁾	+++
Tightness	O-Ring	lip-sealing ring - Tightness tested according to EN 1277
Fire resistance	++ ²⁾	+
Technology	-	+++
Design/colour	-	++

1) Swelling by Methylenchlorid 2) Halogens used



As an example the POLO - KAL -3S / -NG pipe system

- the creation of corrosive and acidic smoke is avoided >>PVC - not avoided
- there is no aggressive smoke >>PVC - there is very aggressive smoke!
- the thickness of the smoke is reduced >> PVC - not reduced!

No environmental problems, because halogen free materials can be:

- Used many times or recycled >> PVC – not possible!
- They can be burned in refuse incinerators >> PVC – not possible!
- They can be disposed of on rubbish dumps because they do not effect the water table. >> PVC – not possible!



WHY HALOGEN FREE SUBSTANCES ?

Three areas are being increasingly scrutinised for materials:

- > Fire properties
- > Enviroment
- > Recycling

Halogen flame retardants are burning with emission of high toxic and corrosive fume. This fume corrodes e.g. concrete and steel in buildings. Readjust after a fire is very expensive, because halogen- and heavy-metal contaminated building-parts and waste must be removed. If halogen free products are burning down, the emission is comparable with fume from burning wooden things.

HALOGEN materials are : CHLORINE, IODINE, BROMIUM etc..

PVC Main Problem

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Airport Düsseldorf 1996:

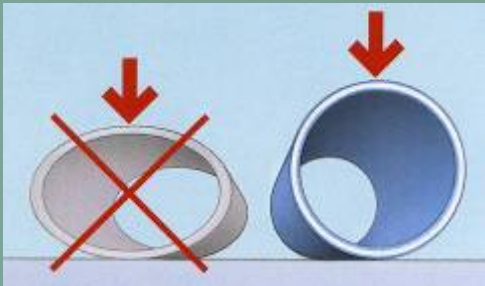
17 People dead, 88 injured
due to the toxic smoke of
PVC!!



PVC = Toxic Fumes



ALL ADVANTAGES ON A VIEW



High piping and dimensional stability



Wide Pipe and Fitting assortment



Accurate sealing System



High impact and chemical strength



Optimal Sound protection



Effective Fire protection



Fast and simple Installation