



A PASSION FOR ENVIROMENTAL PROTECTION



**Sustainability-Management for
Fresh- and Wastewater
Constructions as well as for
Energy-Saving-Solutions**



Planning | Examine | Protect | Fulfilment

What moves us - damages?



Manhole in need of rehabilitation



Damaged tube



Gutter in need of rehabilitation



Floor in need of rehabilitation



Container in need of rehabilitation



Seperator in need of rehabilitation

Who are we?

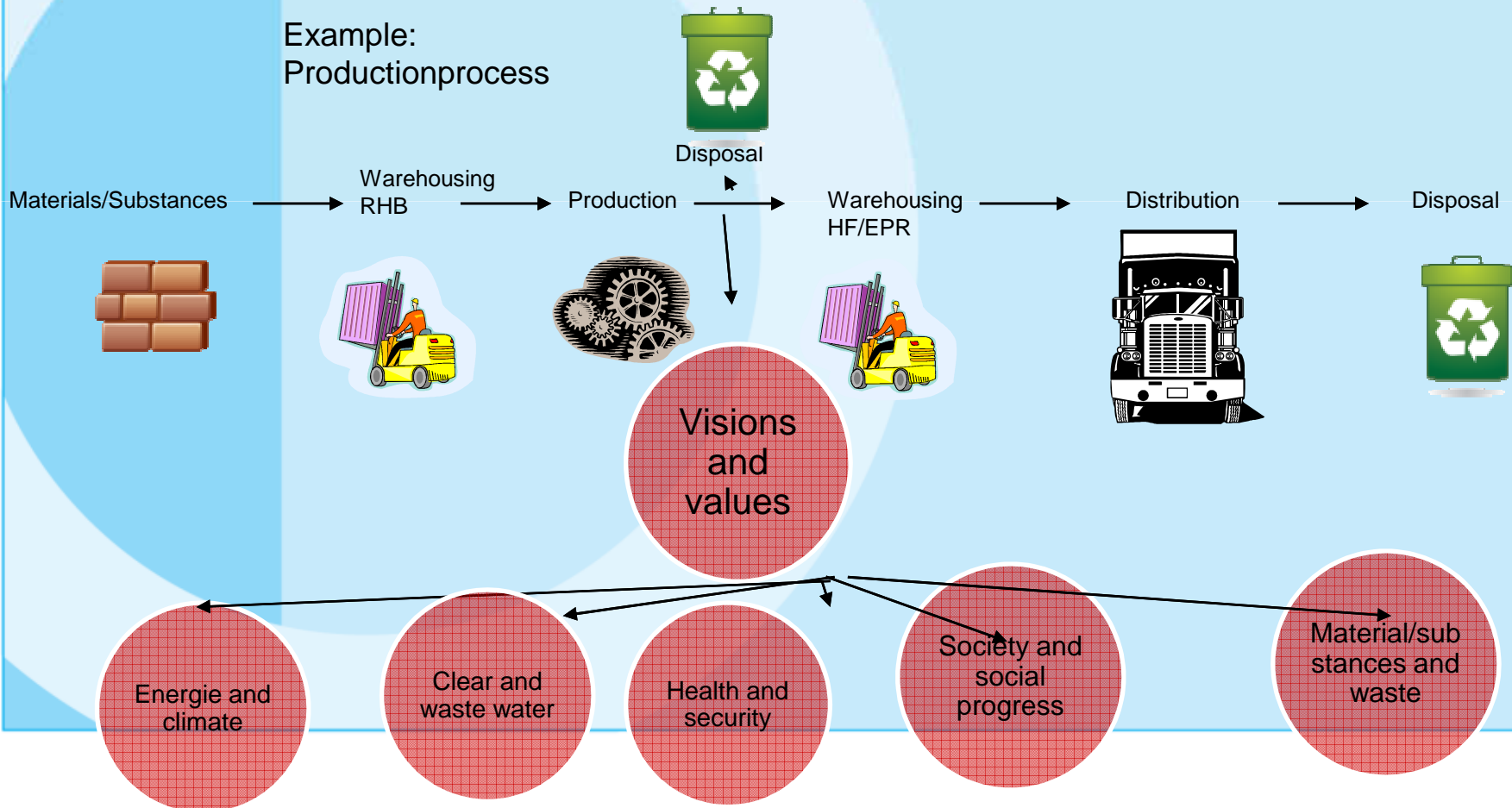


Environmentally sound and economical, through a unified service concept:

- ASAG Umwelttechnik is an innovative, medium-sized enterprise.
- We are one of the leading providers in the area of drainage technology an complex coating solutions in Germany.
- We support for the sealing and protection of buildings and surfaces from environmentally hazardous.
- Our satisfied clients include companies in the mineral oil, sewage treatment, metal and chemical, industries, foodstuff producers and catering companies.

What moves us?

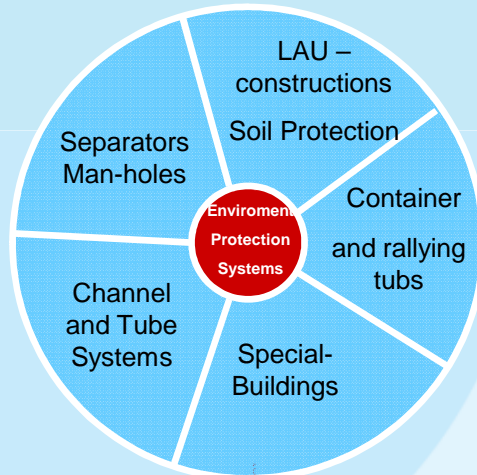
Positively influencing the factors



Our task – Requirements of Environmental protection

Environmental protection

Some applications



Individual customer requirements

- mechanical requests ...
- chemical requests ...
- physical requests ...
- biological requests ...
- thermic requests ...
- terrestrial requests...
- disposal requests

...different materials, resins , processes and techniques are needed for protection against aggressive medium.

Basis:
ASAG Environment-Protetection-Materials



ASAG materials and resins

**PU
POLYUREA**

3 P- Resins

**3P
SILICATES**

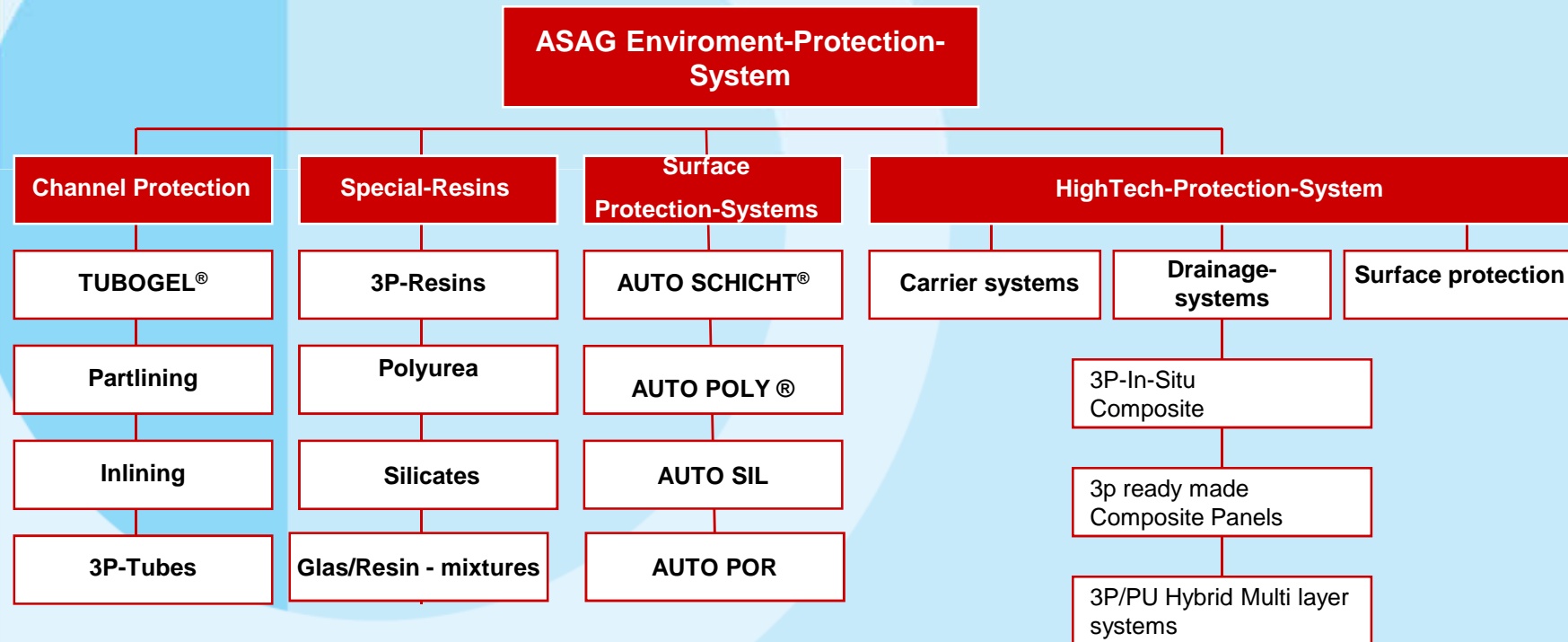
**3P-
Hybrid**

**Minerally
mortar**

What do we offer?



The ASAG Environment-Protection-System – Overview



Our market segments



ASAG Umwelttechnik: Segments

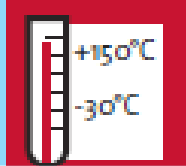
Specialisation	High-Tech	Composite- solution -boards -In-situ	Insulationsystems for thermal-, accoustic-isolation and fire protection
	Standard	Separator Flooding Surface protection	Surface- corrosion protection
		established markets	new markets

Segments customers

ASAG Umwelttechnik: Business opportunities

We protect our environment from nearly all aggressive pollutants with the ASAG Environmental Protection System and we will be one of the leader in the area of:








“Sustainability-Management for Fresh- and Wastewater Constructions as well as for Energy-Saving-Solutions”



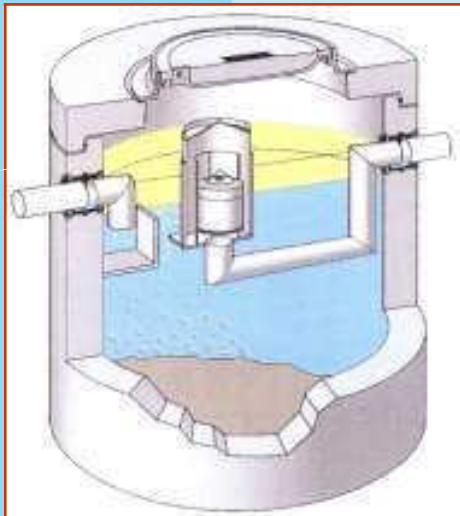
What do we offer?

The ASAG environment-protective system

protects buildings and constructions from destructive, acid-containing and aggressive media under fulfilment of mechanical requirements relevant for environment

-  Leak Test / Camera inspection
-  Tubes
-  Manholes
-  Channels
-  Seperators
-  Container
-  Floors / Surfaces

 **How to refurbish separators**



Cleaning

removing oily parts

Subsurface treatment

Removing loose parts, reprofiling

Sealing

sealing joints, cracks, pipe joints

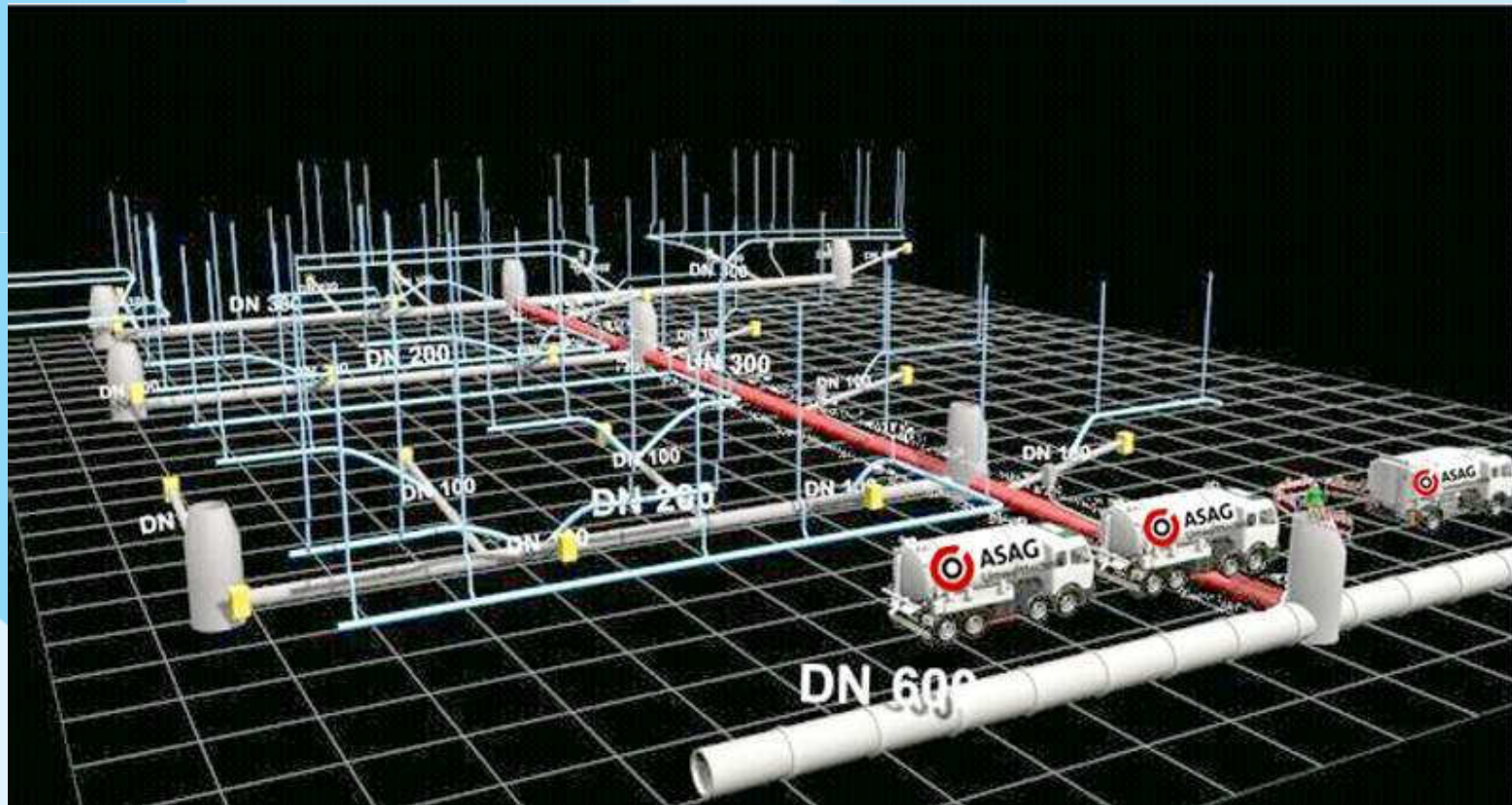
Coating

Coating with AUTO **SCHICHT**[®]

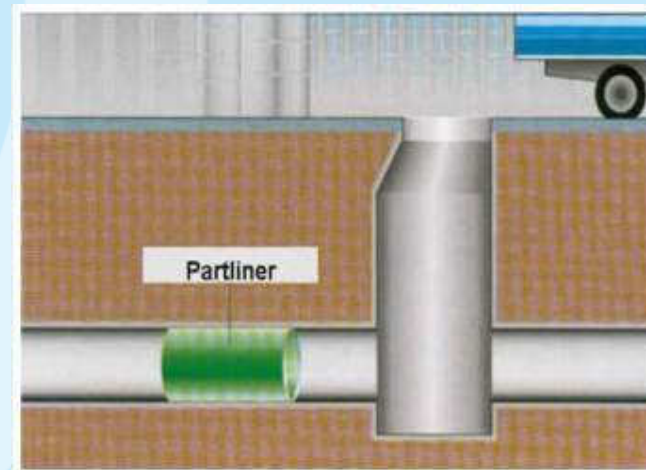
Service

Procuring spare parts and mounting them

Tubes in the Underground



Holistic and innovative: The ASAG Environment-Protection-System in use - Tubes



Holistic and innovative: The ASAG Environment-Protection-System in use – Man-Holes

With the ASAG environment-protection-system we are able to solve (almost) all renovation requirements adaptably and with innovative procedures

Manholes



- Renovation of Man-Holes in the public as well as private-economic area with easy to the heaviest damages. Binding of conduits, **Durchverrohrungen**, closings etc.
- Application of special resins, the surfaces-protective system **AUTO SCHICHT®**
- Application of the surfaces-protective system by means of catapult procedure (KS ASS®). This guarantees a steady and complete coating of the man-hole as well as a very quick processing time.

Containerrenovation with composite materials

Before reconstruction



**Reconstruction with
Composite-panels**



Container renewed with Polyurea



Floorsurfaces renovated



Floors renewed



before



after

AUTO FLOOR ASP

ASAG-Sealing-System is able to bridge cracks in bituminous sealings

DIBt – Zulassung Z-75.3-6

Concrete stone and asphalt



completed with AUTO FLOOR ASP



Goals of Growing and Innovations:



Goals of ASAG Growing to invest in:

- New international markets
- new market-segments (new branches)
- completing the value-chain
- investment in new environmental-protection-systems

Goals of ASAG Innovations:

- No application of hazardous materials
- Conform the REACH-accounts
- Reducing of downtime-costs
- Reducing of material costs
- Reducing CO2
- Application of renewable materials

Growing- and Innovationsinitiative

ASAG Umwelttechnik: Systems

Separators,
digless renovation-system
in the sewer area

Floors. Surfaces and
Containers

Manholes

Core business

Surfaces protection with
Silicat-technology

Special coatings e.g. for
contaminated containers

ASAG Special-corrosion
protection AUTO POLY®,
for steel and concrete

New business

New Insolutionssysteme
for cold-, thermal-,
acoustic- und fire
protection

development

The new AUTO POLY®-Polyurea for steel and concrete



The Eurostars Programme is powered by EUREKA and the European Community



The new polyurea (PU) coating system has been developed in the EUROSTARS-2008 programme, in the R&D cooperation of Polinvent Kft. and Autosafe AG Umwelttechnik.



At the development the experiences of many decades with 3P Resins® have been used, since these resins are also PU systems, made indirectly, cure-in-place.



The new AUTO POLY®-Polyurea for steel and concrete



General advantages of the polyurea coatings:

- Rapid hardening (some seconds to some minutes).
- No diluents, no VOC's, little or no odour.
- Weather tolerant: cures from about 0 to 150°C.
- Excellent resistance to thermal shock.
- Flexible, waterproof, seamless and resilient.
- Unlimited thickness in one application
- Resistant to various solvents, caustics and mild acids
- Low permeability, excellent sustainability, durability



Parameters of the new polyurea coatings recommended primarily for steel surfaces:

tensile strength: EN ISO 527:1999	over 20 N/mm ²
ultimate elongation: EN ISO 527:1999	over 50%
Shore D hardness (age: 8 days)	over 60
adhesive strength (20 mm dolly):	over 20 N/mm ²

Silicate Technology: Applikation

- **Preliminary work:**
Corrosion of the reinforcement because of high carbonatisation or chloride



Silicate Technology: Applikation

- relaxed long processing time
- fast water resilience
- application by brush, scraper, spray, ...
- even at temperatures around +5°C processable
- fast drying and reworkability
- processable by machines



Comparing the properties



Properties	Cement	Epoxy	Silicate
Health risks			
Hardness (compressive strength)			
Tensile strength			
Acid resistance			
Basic resistance			
Solvent resistance			
Frühwasserbeständigkeit			*
Abrasion resistance			
Temperature resistance [°C]			
REACH - Request			

* = needs more time but can be fixed with <5% more cement

Comparing the properties



Properties	3P-Resin	AUTO POLY®	3P/PU – Hybridsystems
Health risks	●	●	●
Hardness (compressive strength)	●	●	●
Tensile strength	●	●	●
Acid resistance	●	●	●
Basic resistance	●	●	●
Solvent resistance	●	●	●
Cure time	●	●	●
Sensitivity to residual moisture	●	●	●
Temperature resistance [°C]	200°	150°	150°
REACH - Request	●	●	●

Implementation: New Insulation Systems

Accoustic-, thermal-, cold- and fire protection inhouse

The inhouse developed insulation material (plates, In-situ) is for the ASAG Umwelttechnik a new market. The results from the development presents exceptional good results of the resin/glas composite by the thermal and accoustic insulation and of fire protection.



What distinguishes from others?

Making the difference!

Own Laboratory Own Production



Own Quality
Departement



Focused on best
Customer
Relationship



We make the difference!



We help you managing your sustainability



A good Choice: Our Customers!

Some of our Clients:



Contact



ASAG Umwelttechnik is mainly in Germany. We are also looking forward to advise international companies in matters related to environmental protection.



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