

## Recommendations of the International Joint River Bodies for in-plant pipeline safety

- 1 Pipelines must enclose substances hazardous to water safely.
- 2 Pipelines must be adequately dimensioned in accordance with the physico-chemical properties of the substances being handled. The tightness of pipelines must be demonstrated by means of generally recognised testing method.
- 3 Pipelines must be able to withstand mechanical, thermal, chemical and biological stress in accordance to the purpose of use and must be durable. This applies also to detachable connections (flanges or similar connections), pumps and other fittings.
- 4 Drifting and declivity of the pipelines must not endanger their safety and tightness.
- 5 Pipelines must be adequately protected against mechanical damages, e.g. being bumped by vehicles.
- 6 Verification of tightness and resistance to corrosion should be subject to repeated checks by independent experts.
- 7 Proof is required that the rate of attrition between the verification intervals does not result in any inadmissible weakening of the pipelines and in particular that localised corrosion is ruled out.
- 8 Where the material of the pipelines is itself not sufficiently tight, suitable coatings are to be applied or equivalent safety measures should be taken.
- 9 Safety aspects must be taken into account when installing pipelines (underground/above-ground).
- 10 Special safety measures are to be taken for pipelines in which the substances transported can cause electrostatic charges.
- 11 Underground pipelines, any detachable connections and valves should be installed in a monitored leak proof inspection shafts. The technical construction of such pipelines should comply with one of the following requirements:
  - they must have double-wall, any leaks in the pipeline wall must be indicated by an approved automatic leak indicator, or
  - they must be designed as suction lines in which the liquid column is interrupted in the event of leaks, or precautions against the discharge of transported products must be taken in regular intervals, or
  - They must be equipped with a suitable protective pipe or be laid in a conduit; any escaping substances must be visible in a monitoring device.

If, for safety reasons, none of these requirements can be fulfilled, only equivalent safety measures may be taken.

- 12 Design, installation, inspection, maintenance of and alterations to the pipelines must be executed and documented professionally.
- 13 Pipelines must be labelled appropriately.
- 14 The position and layout of the pipelines must be documented.