

## Water treatment

### Static mixer for water treatment

PRIMIX is a manufacturer and supplier of static mixers and heat exchangers for urban and industrial water and waste water treatment. With over 30 years of experience we offer through static mixers solutions for conditioning, aeration and disinfection of water.

### Static mixers and heat exchangers for drinking water treatment

Facilities for the production of drinking water often make use of the principle of continuous mixing when treating and conditioning the water. Depending on the source of the drink water, several steps will be required in any production facility in order to make the water suitable for human consumption. The PRIMIX static mixers can be precisely tailored to the process of performing optimum processing or conditioning.

### Applications static mixer and heat exchangers

Applications of the PRIMIX static mixers and heat exchangers are as follows:

- Ozonation of water – blending ozone
- Desalination of sea water
- Disinfecting water
- Adding carbon dioxide to mineral water
- Conditioning of water (pH and temperature)

### Waste water treatment, industrial water purification and sewage water purification

Water purification, also called waste water purification plants, purify the waste water from households and businesses. For this biological, chemical and physical processes are used to treat the waste water. The treatment of waste water and the removal or neutralization of chemical and biological contaminants prior to discharge, is the most important function of a purification plant. PRIMIX provides solutions for efficient mixing of additives while the downtime remains limited.



## **Applications waste water treatment**

Applications of the PRIMIX static mixers are as follows:

- Aeration of the water / oxygen blending
- Anoxic Mixers (de-nitrification)
- Slub Mixers / Conditioning
- Flash / Rapid Mixers
- Carbon Mixers
- Flocculators
- Fermentations (aerobic/ anaerobic)
- Neutralisation Mixers
- Lime slurry mixers
- Foam mixers
- Equalisation mixers
- Mixing HCL, NaOH, H<sub>2</sub>SO<sub>4</sub>, lime in waste water

## **Process water treatment and other water treatments**

At many points in the process industry various types of process water are used. Examples include H-water or water in which certain additives are mixed in as part of the procedure. These streams of water are not suitable for consumption. In most cases the work is done in a continuous process when making this type of water, for example from drinking water, and a static mixer is then the obvious device for administering doses and mixing them in. PRIMIX is a major supplier of equipment used in water mixing and process water treatment.

## **Applications process water treatment**

Applications of the PRIMIX static mixers and heat exchangers are as follows:

- Blending of two streams of water at temperature
- pH correction by adding lye or acid
- Brine dilution for discharge at sea
- Mixing in salt dilutions and re-mineralization
- Coagulation and flocculation - groundwater treatment

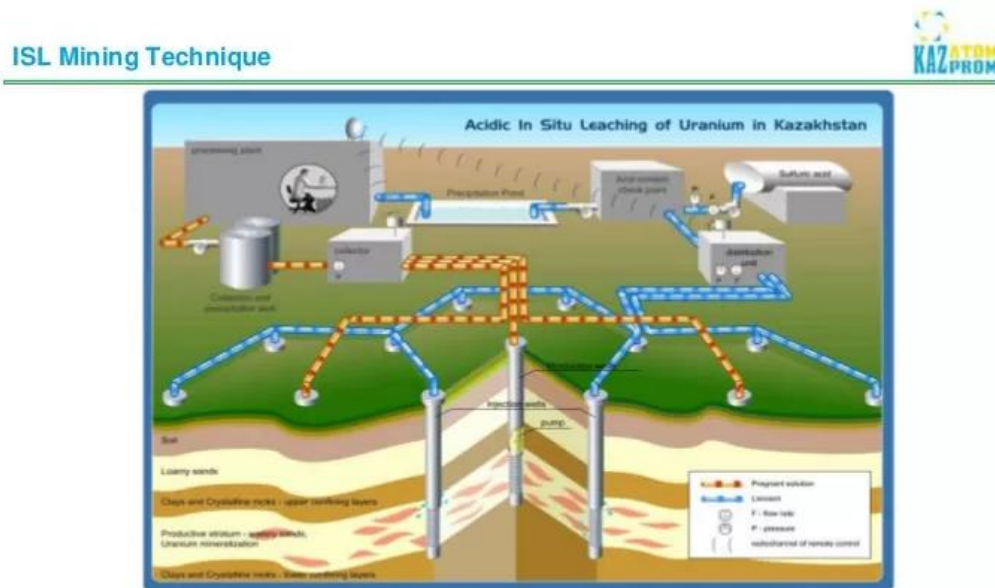
## Mineral extraction

### Static mixers for mineral extraction processes

PRIMIX static mixers are applied in in-situ leaching processes for obtaining minerals, including, for example, uranium. In this process, the mixers are used to dilute sulphuric acid ( $H_2SO_4$ ) to the correct concentration.

### On-site leaching process for mineral extraction

In the in-site leaching process, also referred to as in-situ recovery (ISR), or solution mining, minerals like uranium and copper can be retrieved from the ground through boreholes. In this process, the minerals that are present in the solid substance are dissolved in an acid that is pumped into the ground.



## Applications

### Application of static mixers for the dilution of sulphuric acid

PRIMIX supplies static mixers that are exceptionally suitable for the dilution of sulphuric acid to the correct concentration, yielding a very stable mixture. The dilution of sulphuric acid causes an exothermic reaction, which can result in the creation of local hotspots with high temperatures. This not only requires attention in the design, but also in the choice of materials. The PRIMIX sulphuric acid mixers are manufactured from PTFE, clad in stainless or carbon steel. The PTFE, together with the robust and intelligent design, provides sufficient chemical resistance and is generally more cost-effective than a static mixer manufactured from Hastelloy<sup>®</sup> C276 material. The design has proven itself under the toughest conditions and currently there are hundreds of PRIMIX sulphuric acid mixers in use all over the world.

### **Sulphuric acid injection**

The sulphuric acid is injected through a PFA-lined Caron or Stainless Steel T-piece, placed at the static mixer's input.

### **Low pressure drop**

The mixers are specially designed for the extreme corrosive application and offer a typical pressure drop of less than 0.5 bar.

### **More information about sulphuric acid dilution in a continuous process?**

You can find more information about the mixing of sulphuric acid in a special [case study sheet about H<sub>2</sub>SO<sub>4</sub> dilution](#). Of course, you can always contact us or one of our partners directly as well.