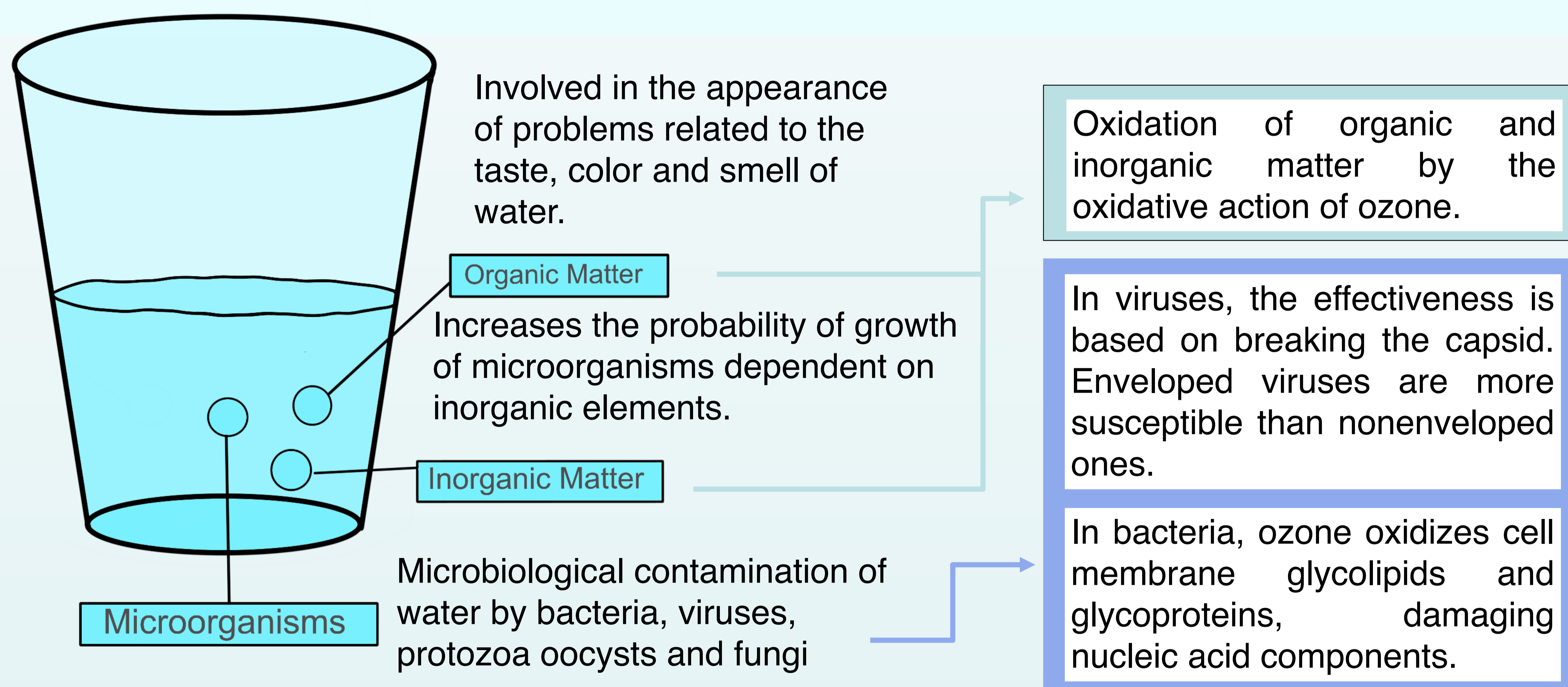


# THE DISINFECTING POWER OF THE OZONISATION PROCESS

## Objectives

- ❑ Analysis of the **effectiveness of ozone in eliminating microorganisms and water-altering substances**.
- ❑ **Comparison** between **ozone** and **chlorine** and evaluation of advantages and disadvantages
- ❑ Evaluation of various applications of ozone in the food industry in relation to the purification of packaged water and the treatment of waste water from the same industry.
- ❑ Analysis and evaluation of ozonisation process to **disinfect surfaces** in the food industry.
- ❑ Evaluation of the possibility of **ozonizing the water of the distribution network**.



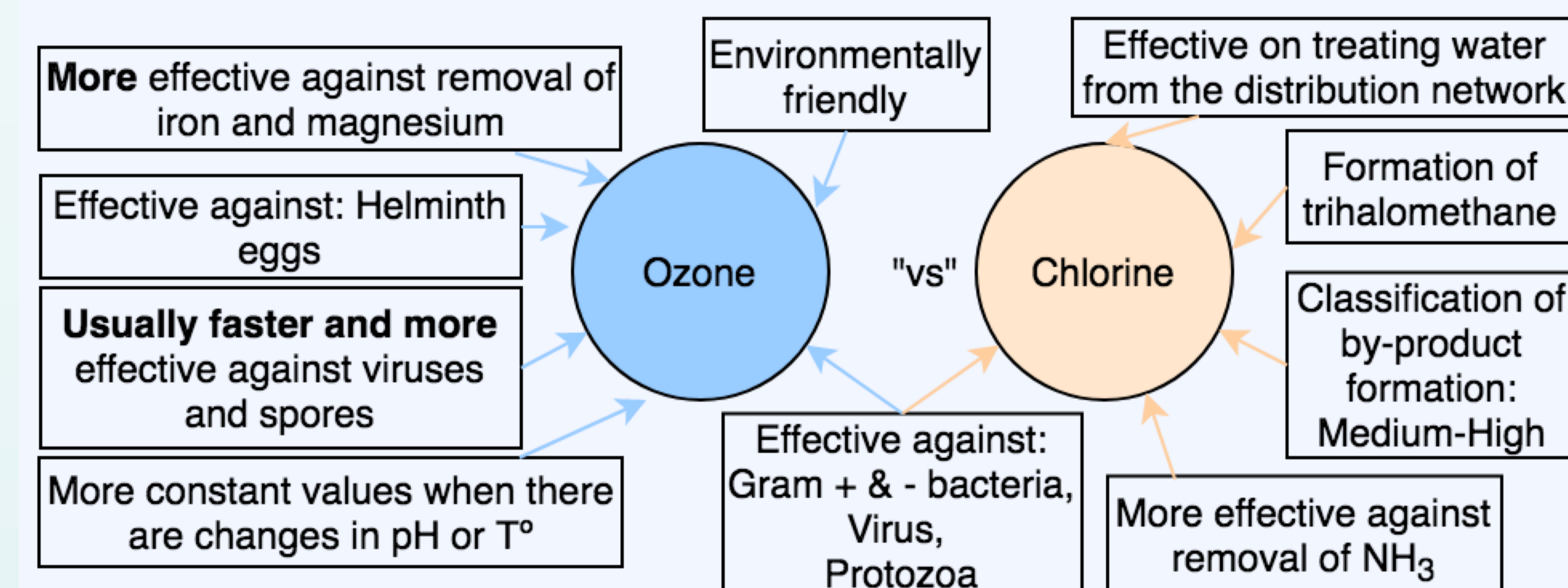
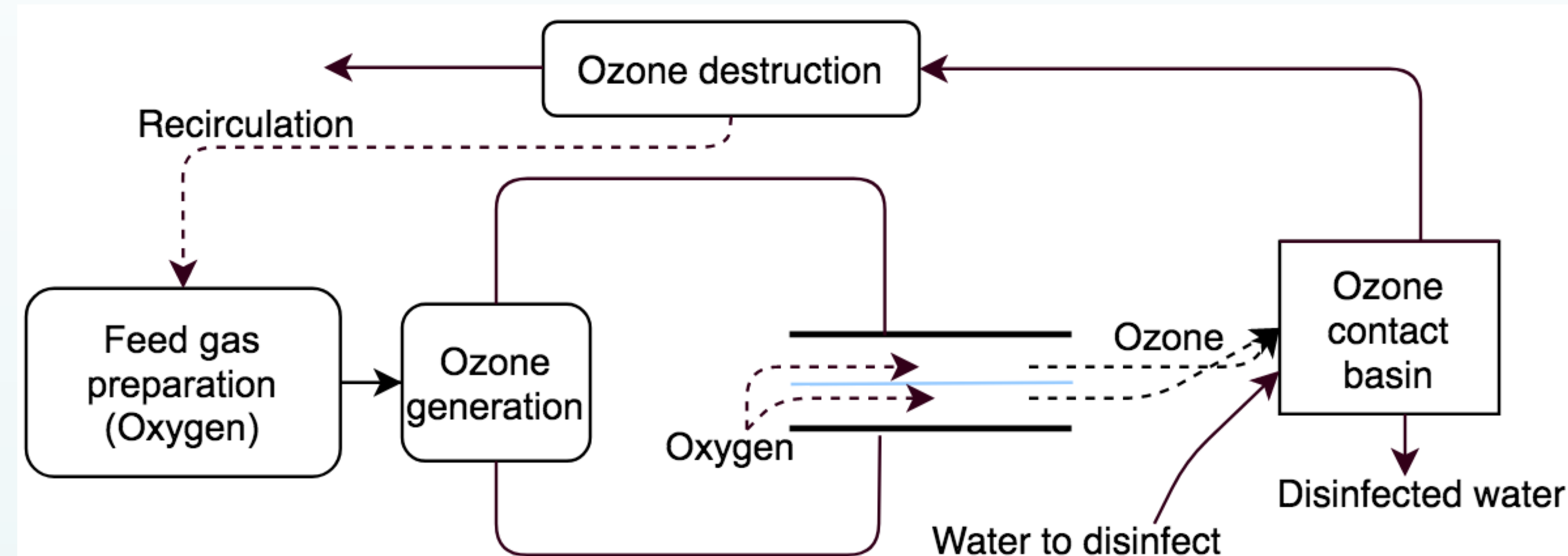
## Surface Disinfection

- For the food industry it is a potential alternative to chlorine.
- The surface material and its condition must be taken into account.
- On smooth surfaces it improves the efficiency and speed of diffusion of ozone compared to complex surfaces.
- This application has been investigated and found to be effective in various studies, such as the case of a CIP cleaning of a bottling plant in the wine industry.

## Legislation

- **ECHA** – Data-sheet (Oxidizing agent)
- **WHO** and **INSST**: Maximum ozone concentration in air.
- **WHO**: “Functional use of ozone as an antimicrobial and water disinfectant”.
- **FDA**: “Ozone can be used in gaseous or liquid form in treat, store and process food”.
- **RD 1074/2002**: Prepared water, mineral water and water from natural sources can receive ozonation treatment.
- **SSI/304/2013**: Recommendations and the need for additional analytical control of the by-products generated. For example, the bromate.

## Ozonisation process



## Conclusions

- ✓ Ozone is capable of removing organic and inorganic compounds dissolved in water. With this procedure, tastes, flavours and colourings are eliminated from the water.
- ✓ On the one hand, the ozonisation technique is effective in removing possible pathogens that may be present in water or in working surfaces of the food industry.
- ✓ On the other hand, it's not at all effective on treating water from the distribution network, because ozone has no capacity to leave residues in water and therefore, its innocuousness cannot be assured.
- ✓ Also, it can be effective in distribution network waters if it's combined with other operations such as chlorination.
- ✓ Several studies have shown that the highest disinfection efficiency is obtained by using chlorine and ozone.

## Future Perspective

Ozone and its ability to disinfect surfaces has become important at the present time in relation to Covid-19. In fact, several sectors, such as the textile industry, have been interested in the application of ozone on the surfaces of the pieces of clothing tested by customers and in online returns. In this case, in order to implement the system, it would be necessary to be able to certify it in relation to the Covid-19 specifically.