

## Bioreactor <PVA Gel>

A carrier for immobilization of microorganism contributing to the enhancement of the wastewater treatment.

### Features

1. Excellent fluidity in water reducing energy for mixing.  
4mm spherical beads having a specific gravity of  $1.015 \pm 0.01$ .
2. PVA gel has a network of minute pores tunneling throughout each bead.
  - (1) Effective bacteria can be enriched in large numbers in the protective core of the beads, thus greatly reducing sloughing of biomass while maintaining stable treatment efficiencies.
  - (2) PVA gel has a very high water content due to its extensive porosity, thus allowing for favorable permeability of oxygen and nutrients to the bacteria colonized inside the beads.

【Carrier Load】	BOD removal	Up to 50 kg-BOD / (m <sup>3</sup> -gel·Day)
	Nitrogen removal	6 kg-N / (m <sup>3</sup> -gel·Day)

3. Depending on the characteristics of the wastewater, treatment ability using PVA gel can be enhanced 5 times or higher than that of conventional activated sludge, thus allowing for upgrading of existing overloaded systems or for design of new process units with greatly reduced foot prints.
4. Treatment with PVA gel yields less excess sludge as compared to conventional biological methods.
5. Polymerized PVA gel is essentially insoluble in water and is not known to be biodegradable.

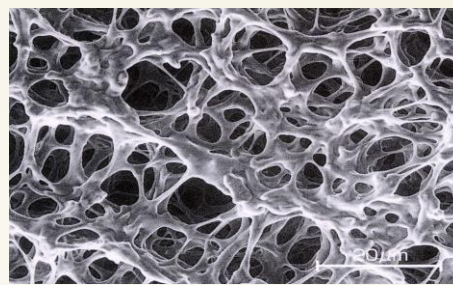
### Overview (Technical principles, actions, etc.)



Before use



After one month



Microscopic structure of PVA gel

## Introductory Track Record

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1. PVA gel is a small and white spherical bead made from PVA polymer.
2. PVA gel has a porous, reticulate structure that can trap and carry microorganisms.
3. Compared to conventional biological methods,  
PVA gel has many good track records in various industries.
4. PVA gel contributes to making the industrial and domestic wastewater clean.



## Effects

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Main effects of the wastewater treatment for various industries (year 2000 or later)

BOD removal	130 cases (rough)
Nitrification and Denitrification	10
Denitrification	40
Nitrification	10

Inquiries

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