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PET-recycling waste water treatment process

- New generation emulsion splitting process -

A process for wash water with mainly organic impurities due to partially fermented beverage residues from PET beverage bottles and the cleaning agents used in the recycling process itself. The organic load is expressed either in COD or TOC; the aim of waste water treatment is to produce clear water and bring COD/TOC below the specified limits.

The waste water is often difficult to treat because a stable emulsion is present. The resulting sludge is difficult to dewater and is critical for filtration. The new generation process described here shows very good clear phase formation without turbidity, optimum large floc formation and a sludge that is easy to sediment. The sludge is also ideally suited for flotation systems.

For an optimum splitting effect, acidification of the often slightly alkaline waste water is generally not necessary, which leads to savings in acids and alkalis. Using this process also significantly reduces the COD/TOC value in the water, as the separable organic impurities remain in the sludge after the emulsion has been broken down.

PET-recycling F&S treatment process:

- Fill the batch tank or start the continuous flow system.
- Addition of EVO-FLOCK-Clear-07 Dosage recommendation: 0.2 - 3 ml/l, depending on the organic load of the waste water.
- Stir for approx. 5-10 min.
- If necessary, adjust to the required pH value.
- Add flocculant FAP 50 W (1%) until flocs form, approx. 0.5-1 ml/l.
- Stir for approx. 2-5 min.
- Sedimentation/flotation depending on the system.
- Filtration of the separated thin sludge via chamber filter press or band filter.
- If necessary, discharge clear water via additional gravel filter and the filtrate into the sewage system.

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PET-recycling waste water treated with **EVO-FLOCK-Clear-07**

The F&S PET-recycling process for waste water treatment works with two liquid products and without the addition of acids or iron salts to break down the emulsion. However, a pH adjustment can be integrated into the process or subsequently carried out with the clear water if the discharge criteria make this necessary.
The water becomes very clear as a result of the treatment, all undissolved impurities are brought into the flocculation by the splitting and separated from the water with the sludge. In a batch plant, separation by sedimentation works best, but in a continuous flow plant, a flotation stage may also offer advantages in terms of time savings or more compact tanks for sludge separation. The organic impurities are as heavy as water itself and therefore float very easily.

The process is ideal for use in PET-recycling waste water treatment plants, but can also be used very well in related industries. These include food production and processing, such as dairies, potato product manufacturing, breweries and slaughterhouses.

In general, many of these waste waters with high levels of microorganism activity and sugar, starch and protein content tend to foam. We can advise on suitable defoamer products.

Our application engineers will be pleased to answer any questions you may have about waste water treatment and also provide on-site support.