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WEASTWATER TREATMENT

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1. INTRODUCTION

1.1 GENERAL ABOUT WASTEWATER TREATMENT

Wastewater collected from urban areas (cities, towns, villages) and from different industries, must ultimately be returned to receiving waters or to the land. The complex question of which contaminants in wastewater must be removed to protect the environment – and to what extent – must be answered specifically for each case. This requires analyses of local conditions and needs, together with the application of scientific knowledge, engineering judgement based on past experience, and consideration of federal, state and local requirements and regulations./1/

The presence of different pollutants in the wastewater makes it almost impossible to treat all the wastewater in the same manner. Some important contaminants (pollutants) of concern in wastewater treatment are given in the **Table 1** ./1/

Table 1 Important contaminants of concern in wastewater treatment

| treatment Contaminants | Reason for importance |
|-------------------------------|--|
| Suspended solids | Suspended solids can lead to the development of sludge deposits and anaerobic conditions when untreated wastewater is discharged in the aquatic environment; |
| Biodegradable organics | Composed principally of proteins, carbohydrates and fats, biodegradable organics are measured most commonly in terms of BOD and COD. If discharged untreated to the environment, their biological stabilization can lead to the depletion of natural oxygen resources and to the development of septic conditions; |
| Pathogens | Communicable diseases can be transmitted by the pathogenic organisms in wastewater; |
| Nutrients | Both nitrogen and phosphorus, along with carbon, are essential nutrients for growth. When discharged to the water these nutrients can lead to the growth of undesirable aquatic life. When discharged in excessive amounts on land they can also lead to the pollution of groundwater; |
| Refractory organics | These organics tend to resist conventional methods of wastewater treatment. Typical examples include surfactants, phenols, and agricultural pesticides; |