

Subject name :Sanitary Engineeing

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STAGES

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graph TD; A[STAGES] --> B[1. ACID FERMENTATION/ACID PRODUCTION STAGE]; B --> C[2. ACID REGRESSION]; C --> D[3. ALKALINE FERMENTATION]; D --> E[STABILISED SLUDGE /DIGESTED SLUDGERIPENED SLUDGE + SUPERNATANT LIQUOR + METHANE GAS];
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1. ACID FERMENTATION/ACID PRODUCTION STAGE

2. ACID REGRESSION

3. ALKALINE FERMENTATION

**STABILISED SLUDGE /DIGESTED SLUDGERIPENED SLUDGE
+ SUPERNATANT LIQUOR + METHANE GAS**

- HIGHLY ACIDIC.
- PH < 6
- HIGHLY PUTREFACTIVE ODOURS ARE EVOLVED FOR 15 DAYS.
- BOD IS INCREASED.

BRIEF EXPLANATION OF MAJOR FACTORS

(a) ZONE OF THERMOPHILIC DIGESTION

- THERMOPHILIC ORGANISMS MEAN HEAT LOVING ORGANISMS.
- $40^{\circ}C - 60^{\circ}C$
- OPTIMUM THERMOPHILIC TEMPERATURE = $54^{\circ}C$
- DIGESTION PERIOD – 10 TO 15 DAYS
- IT IS NOT PREFERRED BECAUSE OF ODOUR AND OPERATIONAL DIFFICULTIES.

2. PH VALUE

- VOLATILE ACIDS $\xrightarrow{\text{METHANE FORMERS}}$ METHANE GAS
- IF METHANE FORMERS WERE NOT PRESENT IN THE SLUDGE DIGESTER, PH VALUE WILL GO BELOW 5. IT WILL INCREASE THE ACIDITY, AND THUS SUPPRESS FURTHER BACTERIAL ACTION.
- IN INITIAL STAGE (ACID FERMENTATION/ACID PRODUCTION STAGE) PH VALUE OF 6.5 HAVE TO BE MAINTAINED.
- SO THAT IN FINAL STAGE (ALKALINE FERMENTATION STAGE) PH VALUE OF 7.2 – 7.4 WILL BE MAINTAINED.

SEEDING WITH THE SLUDGE DIGESTER

WHAT IS SEEDING ?

- *A SLUDGE DIGESTION TANK .
- *WHEN FIRST PUT IN OPERATION –
- *DIGESTED SLUDGE FROM OLD SLUDGE DIGESTER IS KEPT IN IT FOR SOME DAYS .

THANK YOU..