Co processing of Liquid Organic residue – Operational Safety

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Environmental Safety Lead – API

Waste Types

Landfill waste

- Forced Evaporation Salts
- Mixed Salts
- ETP Sludge

Incinerable Waste

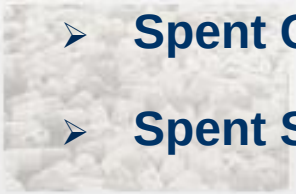
- Process Organic Residue
- Distillation Bottom Residue
- Spent Carbon

Waste Having Reuse Potential

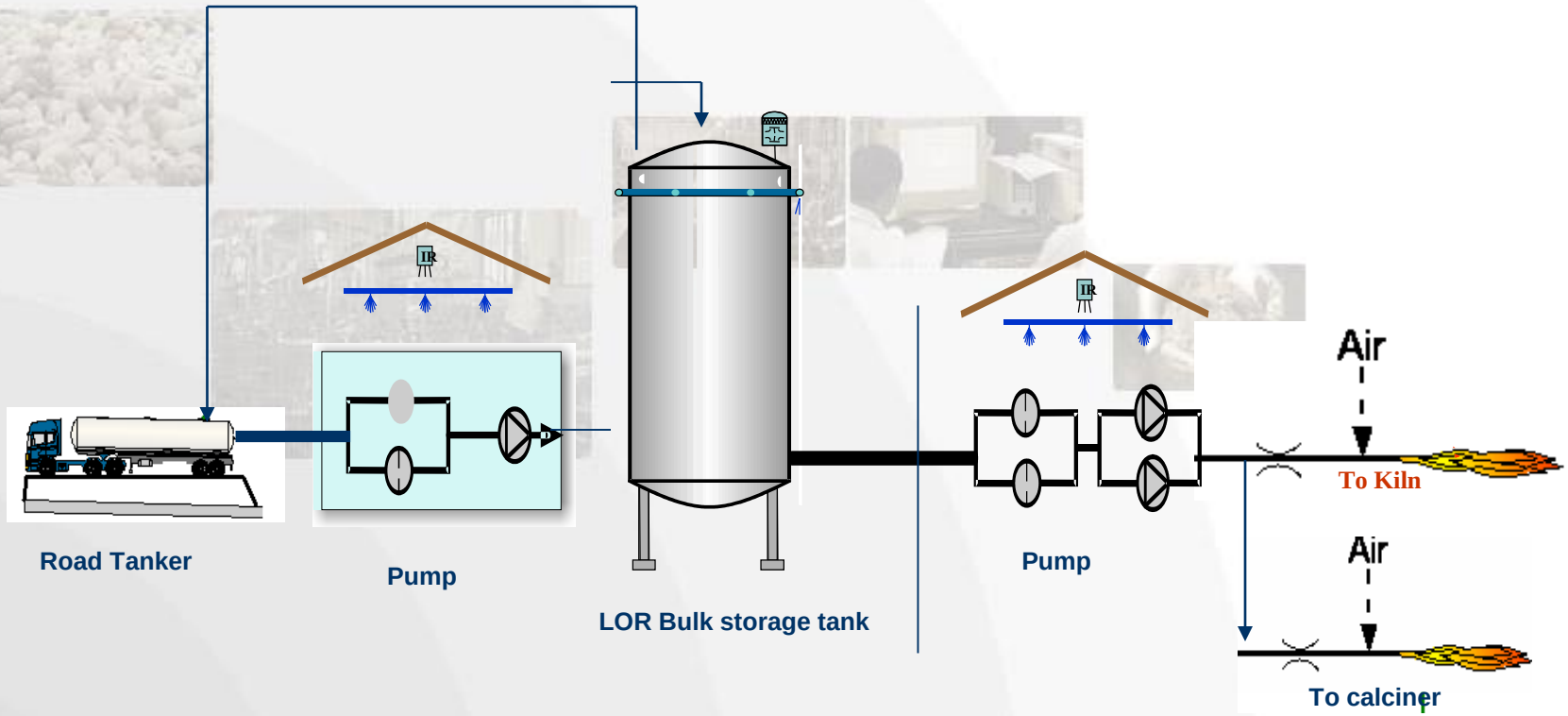
- Spent Solvents
- Mixed Spent Solvents
- Spent Catalyst
- Used Oil/ Waste Lubrication Oil
- Spent acids (HCL, Acetic acid, Phosphoric acid etc.)
- Spent Potassium salts
- Spent Caustic Lye
- Ammonium Sulfate
- Sodium Sulfate
- Sodium Chloride

Waste Suitable for Co processing

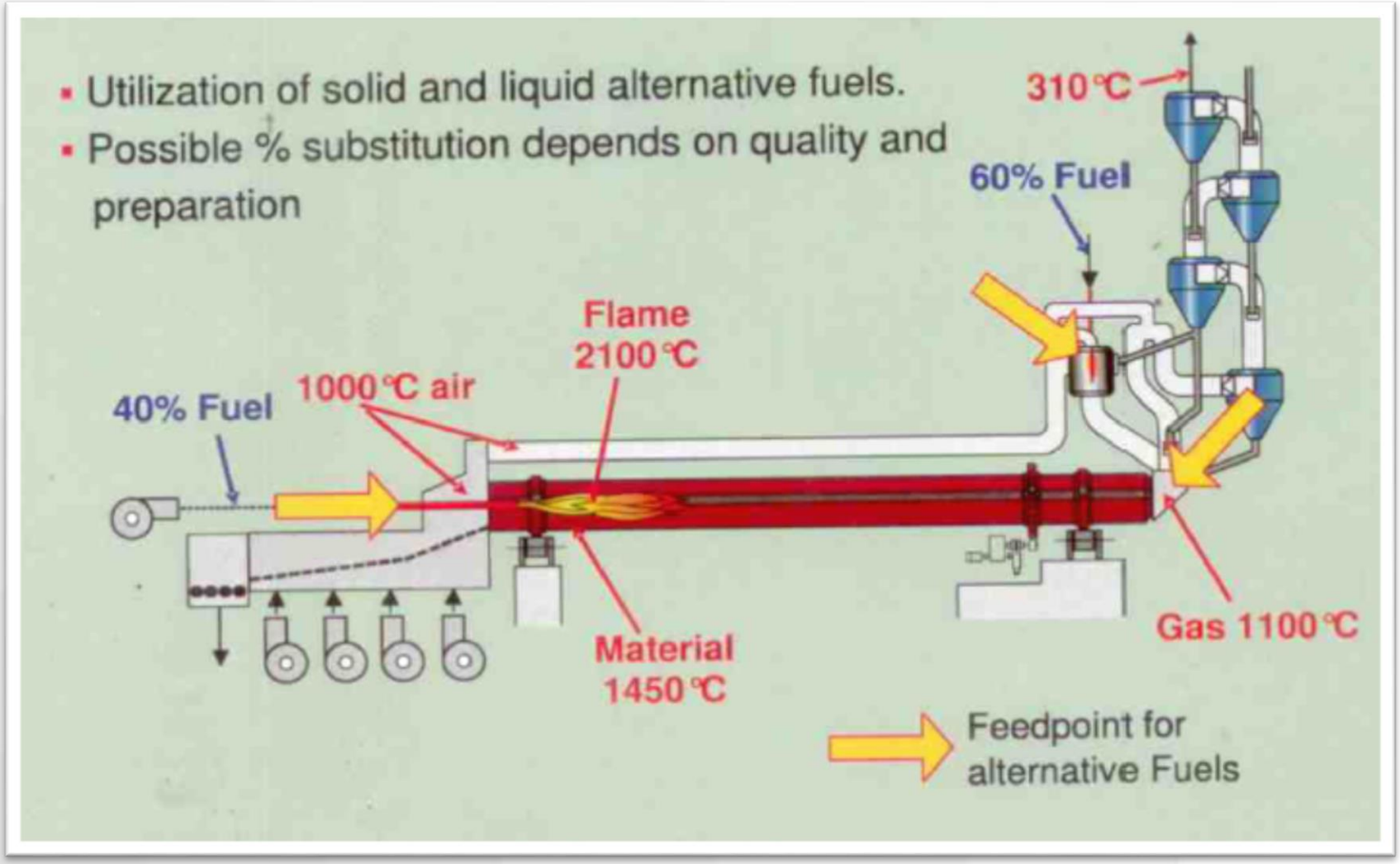
- Process Organic Residue
- Distillation Bottom Residue
- Spent Carbon
- Spent Solvents
- Mixed Spent Solvents
- Used Oil/ Waste Lubrication Oil
- Use PPE , Filter bags
- ETP Sludge
- Off spec raw materials / Intermediates
- Thermocol waste



Liquid Organic Waste Co Processing in Cement Kiln



Feed Points in Cement Kiln

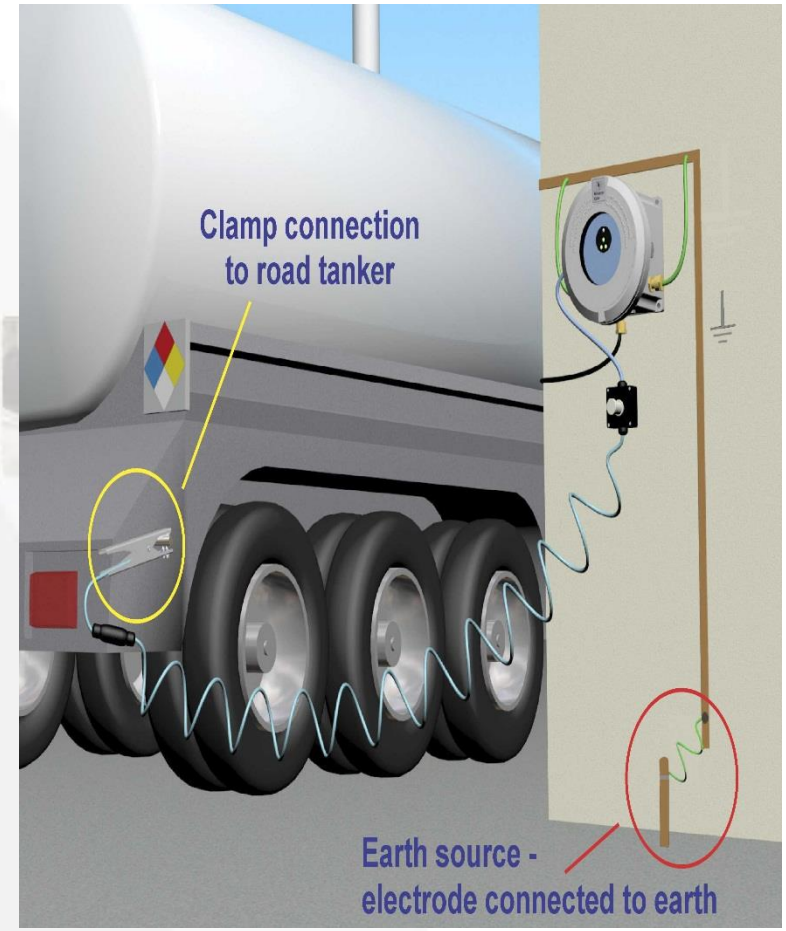


Operational Safety – Tanker Receipt at the site

- Receipt of LOR Tanker with Manifest
- Sample Analysis and Weighing
- Tanker body should be earthed before drawing sample and Protective equipment's should be used to draw sample
- Weighing of tanker on receipt is done and tanker will proceed to unloading area
- Tanker Positioning and provision of stoppers are provided to prevent movement
- Tanker movement to unloading area should be under supervision
- Earth clamp is to be fixed to body of the tanker
- Before unloading tank level is to be recorded and monitored to prevent over-filling.

Operational Safety – Unloading

- Flexible conductive, compatible hoses with flange bonding arrangement is to be provided.
- Unloading pipe has to release the LOR and splashing is avoided
- Uncoupling of Hose, removal of earth clamp, removal of chokes are to be ensured.
- The bonding and earthling connections should not be broken



Operational Safety – Storage tank

- If it is unloaded into a storage tank, for all purposes, it is to be considered as appropriate solvent (as per flash point) storage.
- Installation of such tank has to be as per standard code of practice.
- Fencing the above ground storage area
- If the tank is an underground tank, it has to be in a concrete secondary containment and be securely anchored on a concrete bedding
- The tank is to be provided with sized vent, flame arrester or pressure vacuum breather and level indicator
- On the tank, HazChem warning sign, capacity, name of Material in the tank (LOR) are to be exhibited
- Emergency Instructions are to be posted

Operational Safety – Storage tanks

- Double earth and all pipe flanges are to be bonded.
- Pumps used for forward transfer is to be flame proof type and is to be double earthed
- Pump dry run protection is to be ensured.
- Viscosity of sample of LOR is to be monitored
- If for any reason, flow ability of LOR is reduced, direct or indirect heating shall not be carried out.
- It is recommended not to prefer to store LOR in drums. When it becomes inevitable, the following precautions are to be taken

Operational Safety – Drum Storage

- Drum Storage Area has to be under shade
- Drum Storage area is to be at least 150 mm above the maximum flood level of the area and area warning signs are to be posted.
- The storage area should be provided with imperviously treated, chemical resistant floor and structurally strong.
- Measures should be taken to prevent entry of runoff into the storage area. And should to be connected with the sump
- Floor of storage area is to be provided with secondary containment such as proper slopes as well as collection pit and curb
- The maximum storage period may not be more than two weeks.
- If stored in a shed, Doors and approaches of the storage area are to be of suitable sizes for entry of fork lift and fire fighting equipment.
- Drum Handling and Drum Rotating Fixtures are to be used

Operational Safety – Day Tank

- Vent of day tank is to terminate at a safe location with a pressure vacuum breather.
- Tank Identification, HazChem symbol, capacity, level indicator are to be provided.
- Hazardous area criteria, flame proof electrical fittings, flame proof type pumps are to be used
- It is preferable that storage location is covered by smoke / fire detection of the main facility.
- Two Foam Extinguisher (9 kg), Two CO2 (10 kg) are placed to be available for use.
- Preferably the location is to be covered by Hydrant / Monitor System of the Unit and provide with one additional arrangement for emergency escape.
- Area ownership is to be fixed and spills are to be under the charge of such owner.

Operational Safety

- Signboards showing precautionary measures to be taken, in case of normal and emergency situations are to be displayed
- Liquid Organic Waste Storage is to be considered as Emergency Response system and to be made part of Mock drill
- Prepare emergency response plan
- Train employees regarding action to be taken to prevent hazards
- Arrange for unloading, storage and handling of Organic Waste, taking spill prevention, control and clean up measures
- Make SOP for plant operators and to deal with any emergency arising during firing operation.
- Risk assessment of alternate fuel storage and handling facility



Thank You !