STANDARD GLOSSARY AND TERMINOLOGY OF PALM OIL MILL EFFLUENT (POME)

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The terms palm oil mill effluent and palm oil sludge, and their acronyms POME and POS, are used interchangeably to refer to wastewater discharged from palm oil mills. Currently a miscellany of other terms are in use, based on the physical characteristics of the products, their ultimate use, and their capacity for polluting the environment. The PORIM Oil Palm By-Product Utilization Committee (1984) in consultation with the industry has recommended that there is a need to adopt standard terminology and nomenclature descriptions for the by-products and wastes generated in palm oil mills.

The adoption of a standard nomenclature for palm oil mill effluents could enhance the marketing of oil palm by-products, intra-industry exchange of information, research and development in related industries, and aid regulation of the industry.

GLOSSARY OF PALM OIL MILL EFFLUENT

BOTTOM FRACTION, AEROBIC DIGESTER : Concentrated sludge with drawn from the bottom of the aerobic sedimentation tank after settling of the aerobic mixed liquor suspended solids.

BOTTOM FRACTION, ANAEROBIC DIGESTER : Concentrated sludge withdrawn from the bottom of unstirred anaerobic digesters of two-phase anaerobic digestion system.

BOTTOM FRACTION, ANAEROBIC SEDIMENTATION TANK : Concentrated sludge withdrawn from the bottom of an unstirred anaerobic digester.

CAKE : A non-flowing material derived by any dewatering dehydration process (decantation, filtration, sun drying or mechanical drying).

EFFLUENT, PALM OIL MILL : The collective term for liquid wastes or discharges from a palm oil mill, whatever their composition, their only common feature being ability to flow as distinct from fibres, dust and ashes.

EFFLUENT, CLARIFICATION STATION : Short term CLARIFICATION EFFLUENT. Effluent from the clarification station; this is mostly coming from the sludge centrifuge.

EFFLUENT, DIGESTED : Palm oil mill effluent which has been subjected to anaerobic or aerobic digestion in which solids present are not allowed to settle and accumulate at the bottom e.g. stirred digester.

EFFLUENT, HYDROCYCLONE : Effluent from the separation of kernels from the cracked shells.

EFFLUENT, MIXED : A non-specific term for all effluents, including all mill washings.

EFFLUENT, RAW : Fresh (untreated) liquid effluent discharge from a palm oil mill.

EFFLUENT, SLUDGE CENTRIFUGE : Short term: EX-CENTRIFUGE SLUDGE. The effluent from the sludge centrifuge.

EFFLUENT, STERILIZER : Effluent from the sterilizer during and after autoclaving of fruit bunches.

FILTRATE : A liquor derived by filtration.

LIQUOR : A decanted supernatant obtained by settling or centrifugal decantation.

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SCUM : Solid matter coming to or floating on the surface of pond/lagoon/ ditch/tank.

SLUDGE CAKE : Refers to the dried sludge (can be anaerobic/aerobic). Drying of anaerobic sludge is carried out in sand beds where initial water loss is by percolation after which drying takes place by evaporation or by other mechanical means.

SLURRY : A watery mixture of dissolved and suspended solids (organic and inorganic)

SOLIDS(S) : To be used mainly for laboratory purposes in such contexts as TS (total solids) NOS (non-oily solids), SS (suspended solids) and DS (Dissolved solids), for the dry matter in materials.

SOLIDS, DRY : This term denotes the solids remaining after drying to a constant weight at 105°C. The solids may come from settled, suspended, centrifuges or total solids. Thus, to be quite specific one might need to state: "SOLIDS 105°C dried, centrifuged, ex clarification station". Then on writing a paper on this one would call it "SOLIDS Type A", for short, having defined type A in the first mention in the text.

SOLIDS, SLUDGE : The material left behind by drying, filtration, centrifugation, or gravity settling of 'fresh and digested' effluents. To be specific, the material should preferably be subdivided according to their source. e.g.:

(i) Decanter sludge solids
(ii) Pond/Lagoon/Ditch/Tank sludge solids
(iii) Filtered sludge solids.

The sludge solids, as defined, can range from high moisture non-flowing solids (> 80% moisture) to stabilized dry (< 13% moisture) to even dry matter (solids dried to a constant weight at 105°C).

SUPERNANTANT, AEROBIC : The overflow from sedimentation of the aerobic mixed liquor suspended solids.

SUPERNATANT, ANAEROBIC : The overflow from an anaerobic sedimentation tank.

SUPERNATANT, DIGESTED : The overflow from an unstirred anaerobic treatment system e.g. ditch or unstirred digester in which settling of solids is taking place.

VOLATILE : The definition of volatile solids is useful in obtaining an approximation of the amount of organic matter present in the solid fraction of wastes and in the control of plant operations (Environmental Protection Agency, U.S. Handbook of Chemical Analysis of Water and Wastes). The method determines the weight of solid material combustible at 550 - 600°C. One should not confuse this term with the sublimation of chemical compounds).

CONCLUSION

It is envisaged that the descriptions given above in the glossary on palm oil mill effluent will facilitate and enhance the understanding and utilization of palm oil by-products.

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