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ANALYTICAL

TITLE:

**EFFLUENT EVALUATION FROM CASTLE
BREWERY FACTORY IN THIKA**

TRADE PROJECT

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TABLE OF CONTENTS

| | <u>PAGE</u> |
|-----------------|-------------|
| Declaration | i |
| Dedication | ii |
| Acknowledgement | iii |
| Abstract | iv |

CHAPTER ONE

| | |
|---|----|
| 1.0 Introduction | 1 |
| 1.01 Brewing | 3 |
| 1.02 Pollution and measurement | 6 |
| 1.03 Statement of the problem | 7 |
| 1.1 Objectives of the study | 9 |
| 1.2 Justification of the study | 9 |
| 1.3 Literature-review | 10 |
| 1.4 Methodology | 12 |
| 1.4.1 Chemical tests | 14 |
| 1.4.2 principle of operation of a single beam spectrophotometer | 15 |
| 1.4.3 principle of operation of a flame photometer | 18 |

CHAPTER TWO

| | |
|---------------------------------|----|
| 2.0 Sampling | 20 |
| 2.1.0 Data analysis | 21 |
| 2.1.1. Requirements | 21 |
| 2.1.1.1. Reagents and chemicals | 21 |
| 2.1.1.2. Apparatus | 21 |

| | <u>PAGE</u> |
|--|-------------|
| 2.2.0 Preparation Of the reagents | 22 |
| 2.2.1 Standard potassium | 22 |
| 2.2.2 Sulphuric acid reagent | 22 |
| 2.2.3 Ferroin indicator solution | 22 |
| 2.2.4 Standard ferrous ammonium sulphate titrant | 22 |
| 2.2.5 Starch indicator solution | 23 |
| 2.3.0 Equipments | 23 |
| 2.4 Procedure | 25 |
| 2.4.1. Determination of biochemical oxygen demand (BOD) | 25 |
| 2.4.2. Determination of chemical oxygen demand (COD) | 26 |
| 2.4.3. Advantages of COD over BOD | 27 |
| 2.4.4. Determination of total suspended solids (TSS) | 27 |
| 2.4.5. Determination of alkaline potassium persulphate and sulphide | 28 |
| 2.4.6. Determination of sodium ions | 28 |
| 2.4.7. Determination of potassium ions | 29 |
| 2.4.8. Sample preparation (by digestion method) | 29 |
| 2.4.9. Aspiration of the samples, standards and blanks into atomic absorption spectrophotometer | 29 |

CHAPTER THREE

| | |
|--|-----------|
| 3.0 Observations and results | 31 |
| 3.1 Results from whirl pool (Raw effluent) | 32 |
| 3.2 Results from aeration tanks | 33 |
| 3.3 Results from sedimentation vessel | 34 |
| 3.4 Results from final effluent | 35 |
| 3.5 Calibration curve of sodium | 36 |
| 3.6 Calibration curve of potassium | 37 |

| | <u>PAGE</u> |
|-------------------------------|-------------|
| 3.7 Calibration curve of iron | 38 |
| 3.8 Calibration curve of zinc | 39 |
| 3.9 Calibration curve of lead | 40 |

CHAPTER FOUR

| | |
|---|----|
| 4.0 Discussion | 41 |
| 4.1 Conclusion | 42 |
| 4.2.0 Recommendation | 43 |
| 4.2.1. Primary treatment | 44 |
| 4.2.2. Secondary treatment | 44 |
| 4.2.3. Tertiary treatment | 45 |
| 4.2.4. Renovation of waste effluent | 45 |
| 4.2.5. Recovery of useful products from the waste | 46 |
| 4.3.0 Appendice | |
| Appendix 1 | 47 |
| Appendix 2 | 48 |
| Appendix 3 | 49 |
| Appendix 4 | 50 |
| References | 51 |

ABSTRACT

In this project, samples of effluent from four parts of castle Brewery Factory's effluent treatment plant (E T P) were physically and chemically analysed. These four areas are sedimentation pond, aeration pond, maturation pond and the final effluent tanks. The analysis was carried out as per the given procedures which were found to be the most accurate.

The final effluent which is being drained into the nearby rivers after undergoing various treatment procedures is the one that determines the pollution extend of the brewery to the water courses and the environment in general.

From the analysis and experiments carried during the research, the average concentrations of the following parameters were obtained:-

| | | |
|--------|---------------------------------|--------------------------|
| (i) | Biochemical oxygen Demand (BOD) | 343.3 mg/l |
| (ii) | Chemical oxygen Demand (COD) | 1146 mg/l |
| (iii) | Sulphide concentration | 56.0 ppm |
| (iv) | Total suspended solids (TSS) | 999 mg/l |
| (v) | Potassium, K^+ | 5.7 ppm |
| (vi) | Sodium, Na^+ | 5.0 ppm |
| (vii) | Iron, Fe^{2+} | 2.5 ppm |
| (viii) | Lead, Pb^{2+} | 2.0 ppm |
| (ix) | Temperature | 28.4 ^o fc |
| (x) | PH | 8.7 |
| (xi) | Conductivity | 12892 $m\Omega\ cm^{-1}$ |

The above being major sources of water pollution, their values were noted to be far much above the recommended values for drinking water given by the World Health Organisation (WHO) eg the maximum level of BOD₅ should not be greater than 20 mg/l, comparing this to the BOD₅ value of the final effluent of 343.3mg/l obtained, the level is far much greater. This trend also applies to the other parameters whereby the set standard limits by W.H.O are very much below the values obtained from the analysis.