LABORATORY PROCEDURE - CHZ232E

PROCESSES PRIOR TO CONCENTRATION

CRUSHING AND DRY SCREENING

INTRODUCTION: Crushing is the primary comminuting process which is normally carried out on run-of-mine ore. Crushing reduces the particle size of run-of-mine ore to such a level that grinding can be carried out until the mineral and gangues are produced as separate particles. Primary and secondary crushers handle coarse materials while tertiary and quaternary crushers reduce ore particles to finer gradations. Crushing is accomplished by compression of the ore against rigid surfaces, or by impact against surfaces in a rigidly constrained motion path. Crushing is usually a dry process, and is performed in several stages, reduction ratios(the ratio of maximum particle size entering to maximum particle size leaving the crusher)being small, ranging from three to six in each stage. Product quality, machinery and energy expenses are the main parameters for choosing the right crusher. Run-of-mine ore can be as large as 200cm and these are reduced to 0,5cm during crushing process.
Coarse crushing=200-10 cm; fine crushing= 10-0.5 cm. **Jaw crushers, cone crushers, roll crushers** and **hammer crushers** are the most utilized crushers in mineral processing plants.

PURPOSE: To precise crushing and size distribution characteristics of the ore in different type of laboratory crushers.

Materials and equipment needed:

* Laboratory type jaw, cone, roll and hammer crushers
* Sieves in various sizes
* Sample divider
* Plastic containers

Sample: Limestone

Laboratory Work

1) Each group will be asked to conduct crushing with the ore assigned to their group.
2) Feed and Product will be subject to sieve analysis.

Questions for Further Investigation

1) Give a brief theoretical information (max 5 pages including images, tables and all)
2) Explain experimental work in detail. (Experimental method, all work, measurements and evaluation of the results)
3) Results (Including your personal opinion and discussion)
4) Reports will be handled before due date to the related Research Assistant.

Prof.Dr.Ali Güney **Ass. Prof.Dr.A. Ekrem Yüce**

REPORT TECHNIQUE

Title Page

Group No:

Experiment:

Name/Surname:

Student ID:

1. General Information

Theoretical information will be given about sample preparation, communition, crushing and crushers,screening (max. 2 pages).

2. Method

Materials and experimental method will be summarized.

2.1. Materials

All materials, equipment and the sample used will be listed.

2.2. Experimental Work

All the work done will be explained in detail.

2.3. Results

1) Deneyler sonucunda yapılan elek analizlerinden faydalanarak giriş ve çıkış ürünlerinin elek analizi çizelgeleri oluşturulacak ve toplam elek altı eğrileri çizilecektir.

2) Eğrilerden d50 ve d80 boyutları çizilerek gösterilecektir.

3) Eğrilerden Boyut Küçültme Oranları (B.K.O) (giriş d80 / çıkış d80) hesaplanacaktır.

4) Eğrilerden m ve k modülleri bulunarak "Ortalama Tane Boyutları" hesaplanacaktır.

5) Bond İş İndeksi formülü ile enerji hesaplaması yapılacaktır.

3. Discussions

Results will be discussed.