

**PS:1822-2007 (R)**  
**ICS: 67.180.10**

**PAKISTAN STANDARD**

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**REFINED SUGAR & WHITE SUGAR**  
**(3<sup>RD</sup> REVISION)**



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# **PAKISTAN STANDARD SPECIFICATION**

## **FOR**

### **REFINED SUGAR AND WHITE SUGAR (3<sup>rd</sup> REV.)**

#### **0. FOREWORD**

- 0.1 This Pakistan Standard was adopted by the Pakistan Standards and Quality Control Authority, Standards Development Centre, on **21-11-2007** after the draft finalized by the Sugar Industries Technical Committee had been approved by the National Standard Committee for Agriculture a Food Products.
- 0.2 In the preparation of this standard the views of the manufacturers, consumers, technologists and testing authorities were taken into consideration. It was felt that this standard should be related to the manufacturing and trade practices followed in the country in this field. Due weight-age given to the need for coordination between the standards in force in different countries of the world for promotion of international trade.
- 0.3 This Pakistan Standard Specification laid down on Refined Sugar and White Sugar PS: 1822-1987, first revised in 1987 and secondly revised in 2007 respectively. The committee felt it necessary to revise it again in the light of latest development in the Industries.
- 0.4 Weights and measures appearing in this standard have been principally given in international units. However, in view of the present practices values in kg have also been included in parentheses, wherever considered.
- 0.5 For the purpose of deciding whether a particular requirement of this standard is complied with the final value observed or calculated expressing the result of a test or analysis shall be rounded off in accordance with PS: 103 – 1991 (1<sup>st</sup> Rev.) Methods of Rounding off Numerical Values; the number of significant places retained in the round off value shall be same as that of the specified value in the standard.
- 0.6 This standard is intended chiefly to cover the technical provisions relating to Refined Sugar and White Sugar and it does not include all the necessary provisions of a contract.

**1. SCOPE**

1.1 This Pakistan Standard prescribes the requirements of Refined Sugar and White Sugar and does not apply to Refined Sugar and White Sugar in lump or cube form or to crystal candy sugar or to rack sugar.

**2. DEFINITION**

2.1 Refined Sugar: White Sugar which has been further purified to obtain white, odourless, crystalline Sugar free from dirt and / or any other extraneous matter.

2.2 White Sugar: Crystalline Sugar, off white in colour manufactured by vacuum pan process.

**2.3 REQUIREMENTS**

2.3.1 The material shall also comply with the requirements given in Table – 1.

**TABLE – 1**

**REQUIREMENTS FOR REFINED SUGAR AND WHITE SUGAR AT THE TIME OF MANUFACTURE**  
(Clause 2.3)

S. #	Characteristics	Requirements		Methods of Test (Ref. To Appendix of this Standard)
		Specification 'A'	Specification 'B'	
		Refined Sugar	White Sugar	
1.	Polarization Min.	99.8 <sup>0</sup> <sub>s</sub>	99.7 <sup>0</sup> <sub>s</sub>	ICUMSA GS2/3-1
2.	Moisture (Loss on drying 3 hours at 105 <sup>0</sup> C)	0.08	0.08	ICUMSA GS2/1/3-15
3.	Invert Sugar, percent m/m, Max.	0.04	0.04	ICUMSA GS2-6
4.	Ash, percent m/m Max.			
	i. Sulphate Ash	0.06	0.06	ICUMSA GS1/3/4/7/8-11
	ii. Conductivity Ash	0.04	0.04	ICUMSA GS2/3-17
5.	Solution Colour ICUMSA Unit Max.	60	80	ICUMSA GS2/3-9
6.	Sulphur Dioxide mg/kg, Max.	15.0	15.0	ICUMSA GS2/7-33
7.	Copper mg/kg, Max.	2.0	2.0	ICUMSA GS2/3/29
8.	Arsenic mg/kg, Max.	1.0	1.0	ICUMSA GS2/3-25
9.	Lead mg/kg, Max.	1.0	1.0	ICUMSA GS2/1/3-27

### **3. PACKING AND MARKING**

3.1 **Packing** – unless specified otherwise by the purchaser Refined Sugar and White Sugar shall be packed in clean sound bags in accordance with PS:1692 for Cotton bags or PS: 3128 for Polypropylene bags woven sacks, for packing (Sugar) for 100 kg, 50 kg, 20 kg, 10 kg and 5kg. The mouth of each bag shall be machine stitched.

3.1.1 5 kg, 2 kg and 1 kg bags shall be packed in polyethylene bags as prescribed in PS: 4395 for Polyethylene bags.

3.1.2 The net weight of Sugar in each bag shall be 100 kg, 50 kg, 20 kg, 10 kg and 5 kg with a tolerance of 0.1% of the net weight.

3.2 **Marking-** the following information shall be suitably marked on each bag.

- a. Words “Refined Sugar and White Sugar”;
- b. Guaranteed , net weight of the Sugar in bag;
- c. Season of manufacture, “and the words best within 2 years of manufacture”;
- d. Name of manufacturer;
- e. Serial number;
- f. This Pakistan Standard number, PS: Mark and License number.

### **4. SAMPLING**

4.1 The method of drawing representative samples of the material and the criteria for conformity shall be, as prescribed in Appendix – A.

#### **4.1.1 TESTS**

4.1.2 Test shall be carried out in accordance with the methods prescribed in Cl.2.3, of Table – 1 and methods have to be harmonized with ICUMSA methods and WHO Codex methods.

4.1.3 Unless specified otherwise, pure chemicals shall be employed in tests and distilled water PS: 593 for Water for Analytical Laboratories shall be used where the use of water as a reagent is intended.

NOTE: - Pure chemicals shall mean chemicals that do not contain impurities which affect the results of analysis.

**APPENDIX – A**  
**(Clause 4.1)**

**SAMPLING OF REFINED SUGAR AND WHITE SUGAR**

A-1 General Requirements

A-1.0 In drawing preparing storing and handling samples, the following precautions and directions shall be observed.

A-1.1 The sample shall be taken in a protected place not exposed to damp air, dust or scot.

A-1.2 The sampling instrument shall be clean and dry, when used.

A-1.3 Precautions shall be taken to protect the samples, the material being sampled, the sampling instrument and the containers for samples from adventitious contamination.

A- 1.4 The sample shall be placed in clean, dry and moisture proof containers.

A- 1.5 The sample containers shall be sealed air-tight filling and marked with full details of sampling, that is name is of the material, the date of sampling, season of manufacture, name of the producer, name of the person sampling and such other particulars as considered necessary.

A- 2 **SCALE OF SAMPLING**

A-2.0 Lot – All the bags in single consignments of the material drawn from a single batch of manufacture, shall constitute a lot. If a consignment is declared to consist of different batches of manufacture, the batches shall be marked separately and the group of bags in each shall constitute separate lots.

A-2.1 Each lot shall be tested for ascertaining the conformity of Refined Sugar and White sugar to the requirement of this specification.

A-2.2 The number of bags to be selected for sampling shall be in accordance with col. 1 and 2 of Table 2.



**TALBE-2**

**NUMBER OF BAGS TO BE SELECTED FOR SAMPLING**

**(Clause A-2.2, A-2.3 & A-3.1)**

<b>No. of Bags in Each Lot</b>	<b>No. of Bags to be selected</b>
<b>N</b>	<b>n</b>
2 to 25	2
26 to 100	3
101 to 500	5
501 to 1000	7
1001 to above	8

A-2.3 The bags shall be selected from the lot at random and in order to ensure the randomness of the selection, random number tables may be used. In case such tables are not available the following procedure may be adopted.

Starting from any bag count them as 1, 2, 3..... up to r in a systematic manner where r is equal to the integral part of the value of  $N/n$ . N being the total number of bags in the lot and n the number of bags to be chosen (see Table-2). Everywhere bag thus counted shall be separated until the requisite number of bags is obtained from the lot to given samples for test.

**A-3 TEST SAMPLES AND REFEREE SAMPLE**

A-3.1 Draw a small but equal quantity of material form different parts of each selected bag (see Table 2). The total quantity of the material taken shall be sufficient to conduct the tests for all the characteristics as given in the specification and shall not be less than 750 g.

A- 3.2 Preparation of Composite Sample – Mix thoroughly all portions of the material drawn from different parts of each selected bag. Out of these portions, a small but approximately equal quantity shall be taken so as to form a composite sample of not less than 750 g.

The composite sample shall be divided into three equal parts, one for the purchaser, and another for the vendor and the third for the referee. These parts shall be immediately transferred to thoroughly clean and dry bottles which shall be sealed airtight and labelled with all the particulars as given A-1.5.

A-3.3 Preparation of Individual Samples–The remaining material from each selected bag (after a small quantity needed for formation of the composite samples has been taken out) shall be divided into three parts. These parts shall be immediately transferred to clean and dry bottles which are then sealed with all the particulars of sampling as given in A-1.5. The material in each such sealed bottle shall constitute a test sample. These individual test samples shall be separated into three identical sets of test samples in such a way, that each set has a sample representing each selected bag (see Table-2). One of these three set shall be marked for the purchaser, another for the vendor and the third for the referee.

A-3.4 Referee sample – referee samples shall consist of the composite sample (see A-3.2) and a set of individual test samples(see A-3.3) marked for this purpose and shall bear the seals of the purchaser and the vendor. These shall be kept at a place as agreed to between the two.

#### A-4 **NUMEBR OF TESTS**

A-4.1 Each individual sample shall be tested for moisture, Invert sugars and sucrose.

A-4.2 The test for description, colour and specific conductivity shall be made on the Composite sample.

#### A-5 **CRITERIA FOR CONFORMITY**

A-5.1 A lot shall be declared as conforming to the specification for the material.

A.5.2 All the test results of the characters, which are tested on the composite sample (see A-4.2) shall satisfy the corresponding requirements as specified 2.1 and Table-1.