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COMECON STANDARD СТ Э В 142-75

GOST 3778-77

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Date	Compiled by	SPECIFICATION No
5.11.85	S. Ros	GOST 3778-77
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Table

Symbol of brands		Chemical composition, in per cents								
Corresponding to standard GOST 1498-75	Corresponding to the given standard	Lead, minimum	Mass fraction of contaminants, maximum							
			Silver	Copper	Zinc	Bismuth	Arsenic	Tin	Antimony	Iron
1	2	3	4	5	6	7	8	9	10	11
Pb 99,992	C0	99.992	3.10^{-4}	5.10^{-4}	0.001	0.004	5.10^{-4}	5.10^{-4}	5.10^{-4}	0.001
Pb 99,99	C1C	99.99	0.001	0.001	0.001	0.005	0.001	0.001	0.001	0.001
Pb 99,98	C1	99.985	0.001	0.001	0.001	0.006	0.001	0.001	0.001	0.001
Pb 99,97	C2C	99.97	0.002	0.002	0.002	0.02	0.002	0.001	0.005	0.001
Pb 99,95	C2	99.95	0.0015	0.001	0.001	0.03	0.002	0.002	0.005	0.002
Pb 99,9	C3	99.9	0.0015	0.002	0.005	0.06	0.005	0.002	0.005	0.005
Pb 99,5	C3C	99.5	0.01	0.09	0.07	0.15	0.05	0.10	0.20	0.01

Remarks:

1. Mass fraction of the sum of contaminants Mg, Na and Ca must not exceed 0.002 % for C0 and C1C brands, 0.003% for C1 and C2C brands, 0.015% for C2 brand and 0.04% for C3 brand.
2. After agreement between the producer and consumer, it is permissible to allow a higher content of individual contaminants provided the minimum content of main metal, as indicated in the Table, is maintained.

Magnesium, calcium, and sodium in total	Total maximum norm on contaminants
12	13
0.002	0.008
0.002	0.01
0.003	0.015
0.003	0.03
0.015	0.05
0.04	0.1
–	0.5

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1.2 Lead is prepared in the form of pigs having plane base or in the form of pigs of interclosing shape of a mass ranging from 30 to 40 kg. and a mass of 10 kg.

On ~~After~~ agreement between ~~the~~ ~~producer~~ manufacturer and ~~the~~ consumer, it is permissible to prepare lead in the form of blocks of mass ranging from 1 to 3 tons.

Shape, size and mass of blocks are established ~~after~~ on agreement between ~~the producer~~ manufacturer and ~~the~~ consumer.

1.3 The surface of pigs and blocks of lead must be without any oxides in powder from or foreign inclusion (slag, brick, etc.). Iridescent colour, white film and shrinkage holes are permissible. Pigs, blocks and ingots must not be laminated.

2. ACCEPTANCE RULES

2.1 Lead is accepted in batches of a maximum mass of 500 tons each. The batch must consist of the same brand lead and accompanied by a single document on its quality.

2.2 2% pigs (but a minimum ~~of~~ 5 pieces) and 10% blocks (but a minimum ~~of~~ 3 pieces) are selected from each batch so as to check the mass and chemical composition of lead.

Sample of lead is taken uniformly at the production plant from ~~the~~ molten lead during the process of ~~the~~ pouring ~~of the batch~~ of metal; at the ~~rate~~ set the beginning, in the middle and at the end of pouring.

Content of the sum of magnesium, sodium and calcium in lead of all brands is determined by the ~~producer~~ manufacturer periodically at least once in a month.

2.3 Quality of the surface of all the pigs and blocks comprising the batch is checked.

2.4 If the chemical analysis of even one ~~criterion~~ parameter reveals unsatisfactory results, re-test analysis for the same ~~criterion~~ parameter is conducted on the duplicate ~~specimen~~ sample of the given batch. The results of analysis are valid for the whole batch.

3. TEST PROCEDURE

3.1 In order to check the chemical composition of lead, the selected pigs are drilled with a drill with 10-20 mm diameter. ~~Locations~~ Places of the entry and exit of drill are cleaned to a depth of 0.3-0.5 mm. The pits are drilled at six points: three each at the upper and the lower surfaces. Moreover, one drilling is done in the middle and two at a distance of 1/6 of diagonal from the angle to a depth equal to half the height of pig.

It is permissible to take the sample by sawing or milling. Each pig is sawed or milled at three places: in the middle and at equal distance from the middle approximately at a distance of 1/4 ~~times~~ of the length of pig.

The surface of pigs at the ~~locations~~ places from where samples have to be taken are cleaned first and oxides with the help of metallic brush, polishing or scraping till the clean metallic surface is obtained.

The sample is taken in any state without using cooling fluids and lubricants at low drilling speed (in order to avoid overheating and oxidation).

Sample from blocks is taken by cutting two angles opposite to each other diagonally or done along the whole height of the block.

Chips and filings collected from all the pigs, ingots or blocks are mixed together. The obtained common sample is cut finely with the help of scissors so as to obtain particles of 3-5 mm size, they are thoroughly mixed together and treated with magnet. They are then reduced by quartering till the laboratory sample having a minimum mass of 2 kg is obtained. The laboratory sample is divided in two equal parts, one of which is sent for analysis while the other one is stored as duplicate.

3.2 Sampling from molten metal is done by casting of specimen ingots. Shape and mass of specimen ingots is not limited by norms.

If necessary, the selected common sample is reduced till a sample having a minimum mass of 3 kg is obtained.

Laboratory sample is divided in three parts, placed in polyethylene packets together with labels indicating the data of sampling, number of batch and name of the person who took the sample. One part of the sample is sent for analysis, while the other two are stored for six months at the producing plant.

3.3 Analysis of lead is carried out in accordance with GOST 20580.0-75 - GOST 20580.8-75 or GOST 8857-77.

It is permissible to conduct the analysis at producing plant by other accelerated techniques if in accuracy they are not lower than the standard ones.

Analysis of C3C brand lead is conducted by method approved in the established manner. orders

3.4 Lead content in percents is determined as the difference between 100% and the sum of the contents of standardized components ~~limited by norms~~. in %.

3.5 Quality of the surface of pigs, ingots and blocks of lead is checked by visual inspection, while the mass is checked by weighing.

4. MARKING, PACKING, TRANSPORTATION AND STORAGE

4.1 Each pig and block of lead must ~~be marked~~ have marking, which indicate the trade mark of producing plant and the number of batch.

4.2 In order to designate the brand of lead, one band (of the colours given below) is applied on the face of pig, ingot and block with an unwashable paint:

red..... to indicate C0 brand;

green .... to indicate C1C brand;

white .... to indicate C2C brand;

yellow .... to indicate C2 brand;

blue ..... to indicate C3 brand;

brown .... to indicate C3C brand.

C1 brand lead pigs and blocks are not marked by any paint.

4.3 Lead in pigs is transported without packing by any means of covered transport. ~~On~~ agreement between ~~the producer~~ manufacturer and ~~the~~ consumer, it is permissible to transport lead in pigs by any means of uncovered transport as also in special reusable trays ~~which are trip containers.~~

4.4 Lead meant for export is packed in packets. Requirements of to ~~the latter are established~~ by the order from foreign trade organization.

4.5 Lead in blocks ~~is~~ are transported by any means of uncovered transport.

Lead in blocks meant for long duration storage is transported in covered means of transport ~~after~~ on agreement between ~~the producer~~ manufacturer ~~its~~ consumer.

4.6 Transport ~~devices meant~~ means for lead, ~~to be~~ subjected for long storage must be clean and washed, if necessary.

4.7 Each batch of lead must be accompanied by a document of ~~its~~ quality which must ~~confirm~~ certify that the metal conforms to the requirements of given standard and must contain the following data :

- ~~name of the producer~~ manufacturer or its trade mark;
- name of product;
- brand of lead;
- number of batch;
- mass of batch and the number of pigs, packets or blocks;
- results of chemical analysis;
- date of production (when supplied for long ~~duration~~ term storage);
- designation of given standard.

4.8 In case of ~~having~~ lead received in established manner, the Stat. quality mark, the transportation container and the accompanying document must carry the State Quality Mark corresponding to GOST 1.9-67.

4.9 Lead is stored under shed.

APPENDIX
(For reference)

Correspondence of the requirements of standard C э B 142-75 to the requirements of given Standard

Requirements	Corresponding to standard C э B	Corresponding to given standard
Brands	Pb 99,992	C0
	Pb 99,99	C1C
	-	C1
	Pb 99,98	-
	Pb 99,97	C2C
	Pb 99,95	C2: content of silver, copper and zinc is made more rigid
	Pb 99,9	C3
	Pb 99,5	C3C: content of silver and copper is made more rigid.
Content of the sum of magnesium, sodium and calcium	-	0.002%, maximum: for C0 and C1C brands; 0.003 %, maximum: for C1 and C2C brands
		0.015%, maximum for C2 brand; 0.04 %, maximum for C3 brand.
Content of contaminants in lead intended for use in production of alloys	-	lead content is reduced by the sum of the components of alloy

Appendix (Contd.)

Requirements	Corresponding to standard C3C	Corresponding to given standard
Shape of ping	With plane base	With plane base or interclosed shape
Mass of pig	From 30 to 50 kg	From 30 to 40 Kg. and 10 Kg.
Mass, shape and size of blocks	As per agreement between ~~parties~~ sides	–
Quality of surface	Without powdered oxides and foreign inclusions	Without powdered oxides and foreign inclusions (slag, brick, etc.). Iridescent colour, white film and shrinkage holes are permissible
Mass of batch	–	500 tons, maximum
Sample size for controlling the mass of pigs.	–	100 %
Arbitrary analysis of chemical composition	As per agreement between the producer and consumer manufacturer	GOST 20580.0-75-GOST 20580.8-75 or GOST 8857-66 and in case of C3C brand: agreement between the producer and consumer
Marking	Trade mark of ~~producing~~ manufacturing plant, melt number	Trade mark of ~~producing~~ manufacturing plant, number of batch
Transportation of :		
pigs	Piles, packets as per agreement between ~~parties~~ sides	Without packing
blocks	–	Uncovered means of transport, covered in case of agreement between ~~parties~~ sides
Ingo	Piles, packets as per agreement between ~~parties~~ sides	–
Storage	–	Under shed

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