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CENTRAL INTELLIGENCE AGENCY

WASHINGTON 25, D. C.

8 September 1950

MEMORANDUM FOR ALL RECIPIENTS OF CIA INFORMATION REPORTS

25X1 [redacted]

25X1 SUBJECT: CIA [redacted] Information Reports

25X1 1. The first dissemination of the new series of CIA [redacted] Information Reports accompanies this memorandum.

25X1 a. The [redacted] reports will be produced on white paper.

2. The new series will report the results of examination, testing, and analysis of foreign materials and devices of intelligence interest. It is anticipated that the items reported on will be almost exclusively of Soviet or Satellite origin.

3. It has been found necessary to establish the new report series to permit rapid distinction between other CIA reports and reports resulting from SOVMAT activity.

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Assistant Director
Office of Collection and Dissemination

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CLASSIFICATION ~~CONFIDENTIAL~~ CONFIDENTIAL 25X1

CENTRAL INTELLIGENCE AGENCY

INFORMATION REPORT

COUNTRY USSR

DATE DISTR. 6 Sep 1950

SUBJECT Test & Examination of Soviet Manufactured Tin Can

NO. OF PAGES 3

25X1

PLACE ACQUIRED

NO. OF ENCLS. (LISTED BELOW)

DATE ACQUIRED 25X1

SUPPLEMENT TO REPORT NO.

DATE OF INFORMATION 25X1

THIS IS UNEVALUATED INFORMATION

25X1 1. The results of examination and tests of the can are as follows:

		Body	End
a.	Tin Coating		
	Free Tin #/BB	1.29	1.62
	Alloy Tin #/BB	.21	.25
	Total Tin #/BB	1.50	1.87
	Tin Coating - Very smooth appearance		
	Steel Base Surface - Very bright - Rolled with very bright rolls		
	Physical Tests		
	Rockwell 30-T	57	66
	Gauge (in.)	.0112	.0102
	Bethco Stiffness	33 Actual	-
		26 Converted to .01"	-
	Amsler Bends	20	-
	Tensile	53,600#	-
	Elongation 2"	27.0%	-
	Pickle lag (sec.)	39-46-50	-
	Microstructure		
	Grain size	350 psi.	350 psi.
	Inclusion rating	C1 & D1	C1 & D1
	Steel Analysis		
	C. Copper	.06	.04
	P. Phosphorus	.014	.019
	S. Sulfur	.025	.046
	*Sn. Tin	.04	.08
	*Mn. Manganese	.31	.35
	*Al. Aluminum	.006	.011
	*Co. Cobalt	.005	.005
	*Si. Silicon	Less than .01	Less than .01
	*Ni. Nickel	.37	.07
	*Cr. Chromium	.03	Less than .03

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STATE	X	NAVY	X	NSRB		DISTRIBUTION							
ARMY	X	AIR	X	FBI		aec X							

*W.	Tungsten	Less than .04	Less than .04
*V.	Vanadium	Less than .02	Less than .02
*Mo.	Molybdenum	.02	.01
*Cu.	Copper	.23	.19
*Ti.	Titanium	Less than .003	Less than .003
*Pb.	Lead	.003	.004
*B.	Boron	Less than .002	Less than .002
*As.	Arsenic	.001-.003	.001-.003

*By spectrographic analysis

2. The evaluation of the sample tested is as follows:

a. Both the body and the end were made from hot dipped tin plate. This is concluded in a general way from the heavy tin coating weight and the amount of alloyed tin in the iron-tin alloy, both of which would be very unlikely to be so heavy on electrolytic tin plate. More specifically, removal of the tin coating reveals the usual mottle pattern, which is the result of a surface reaction of the flux and molten tin on the steel base as it enters the tinning pot, and is of course, present only on hot dipped plate.

b. The appearance of the tin coating after removal of the enamel film is very bright, smooth appearing, and highly reflective. The weight of the tin coating is heavy enough to insure adequate protection for normal to long periods. The tin coating on both the body and end is very unusual in that the so-called oil lines or "oil veins" are practically invisible. This is all the more unusual with this heavy tin coating and the fact that the base steel was rolled, especially in the temper rolling, with very bright rolls, so that it had a highly reflective surface. This practical elimination of the oil lines results in a more thorough tin coverage for a given weight of tin coating; and where the life of a can depends on a thorough uniform coverage of tin, this tin plate without the usual "oil veins" offers an improvement over a conventional tin coating of equal weight.

c. Examination of the physical testing results determined on the body and end indicate that this phase of the tin plate production resulted in a product comparable to our own tin plate. The tin plate was cold reduced to a thickness equivalent to 90# base weight for the end and 100# base weight for the body. The Rockwell hardness values are equivalent to our temper T-3 which in most cases is used for bodies and ends. The stiffness value is slightly low as might be expected, considering that the steel was temper rolled with very bright rolls. The bend test and percent elongation indicate good ductility. The microstructure reveals that a box annealed structure quite similar to that on tin plate production in this country has been used and is considered satisfactory. The so-called pickle lag tests indicate the effect of gas reactions with the steel surface during annealing, and although the aim of our own mill and most other producers is to keep this value low, most tests on domestic tin plate approximate these values. Very low values in this test (below 10) indicate an improved corrosion resistance on this variable of the annealing gas reaction.

d. For the composition of the steel base, spectrographic analysis was resorted to, for some of the elements in order to obtain a value for as many elements as possible. This analysis obtained on this tin plate would be considered undesirable for tin plate in the US for the following reasons:

a. Phosphorus is preferable held below .015 although in some cases .02 would be acceptable.
b. Sulfur is preferably held below .040
c. Tin is held to a minimum preferable below .03-.04 principally because of manufacturing difficulties in rolling steel to such thin gauges. Although in some very few cases values of .07 to .08 have been encountered.
d. For corrosive foods, principally fruits and vegetables, nickel is held to .04, and although no maximum is enforced for other general uses it is preferably held low because of its hardening effect.
e. Again as in (d) above, copper is held to a maximum of .06 for certain fruit and vegetables and to .20 for other general uses.

e. In summary on this important subject of quality, we consider that the tin coating is good with sufficient weight of tin to give adequate protection for normal use. From the physical tests microstructure, etc, we consider that the practice used in cold reducing, annealing, etc, would approximate the practice of domestic mills. The composition of the steel base is somewhat undesirable for most foods, and would certainly be undesirable for any corrosive fruits or vegetables.

f. It was pointed out above that the elimination of the oil veins in the tin coating is very unusual. In fact, this is the first example of hot dipped tin plate that we have seen, to have such a smooth appearance for this weight of tin coating. To the best of our knowledge it is unlike anything we or any other producer in this country has manufactured. Although we have not had an opportunity to examine any continuous hot dipped plate, such a different surface characteristic suggests some such method of production. This is somewhat a conjecture, but it has been suggested that this plate may be the product of a continuous hot dipping unit at the Dandstaht Werke in Germany. We have only recently learned of this development in Germany.

g. Actual tin coating weights are shown above in paragraph 1; they are adequate to ensure satisfactory quality. A value for the tin in the iron-tin alloy is also included above and this value is normal for a hot dipped product.

3. Production of processed crabmeat is rather limited in this area, but we believe with fully enameled cans that the present facilities would use either the common or standard classification of hot dipped tin plate. These classes would average approximately 1.10-1.20#/BB and 1.30-1.40#/BB respectively and individual spot tests would generally fall within the range .90#/BB to 1.80#/BB.

4. In connection with this investigation we have secured two similar cans, packed with "Chatka" brand fancy crabmeat, obtained from a local food market. The label was practically identical except for the brand name and the fact that it indicated Fancy Crabmeat. There has not been sufficient time to complete full examination of these two additional cans, but it is quite interesting to note, that the tin coating of the bodies and one end of each can is quite similar to the specific can covered by this report. There is the same smooth surface with the apparent elimination of the so-called "oil veins". It is also interesting to note that the other end of each can was a conventional hot dipped tin plate and under the enamel film, appeared somewhat discolored as though the tinplate had aged somewhat.

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