

## UNITED STATES PATENT OFFICE

2,168,107

## CONTAINER STRUCTURE WITH INHIBITOR

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No Drawing. Application April 19, 1935, Serial  
No. 17,357. Renewed April 18, 1939

4 Claims. (Cl. 99—181)

This invention relates to improvements in con-  
tainers for food products, and is particularly  
concerned with the provision of a container  
which is capable of enclosing a food product of  
corrosive character, i. e., one which normally  
tends to attack tin plate or like product nor-  
mally employed in making at least a portion of  
the container.

According to the present invention, the food  
product is prevented from attacking the corrodi-  
ble portion of the container by contacting this  
food product with a substance which operates  
upon contact with the food product to inhibit  
such corrosion.

A particularly advantageous manner of intro-  
ducing and maintaining the substance is to in-  
clude it as an ingredient in a coating, such as the  
sealing compound which is employed for estab-  
lishing the hermetic seal of the container. It is  
customary in closing tin cans, for illustration, to  
make the final seal by crimping or seaming the  
edges of the cover and body portions of the con-  
tainer into interlocking relation with one an-  
other; the hermeticity of the seal being main-  
tained by providing a plastic seal at this junction.  
One manner of providing the seal is to form the  
cover with a peripheral groove, and to distribute  
a plastic sealing compound into this groove and  
permit it to become semi-solid or solid therein  
and adherent to the groove walls. When the  
cover is located upon the end of a container body,  
and crimped thereto, this sealing compound is  
placed under compression and thus serves to  
form and maintain the tight sealing desired.

When corrosive substances, such as the juices  
of certain preserved fruits, come into contact  
with tin plate or like material, they tend to  
attack this material, particularly if the plating  
is imperfect, and to cause perforations of the  
containers; and also, when such material is dis-  
solved, the true color of the food product is  
affected deleteriously.

According to the present invention, the cor-  
rosive action is inhibited by presenting to the  
food product a substance which tends to prevent  
this attack, this substance being preferably in-  
troduced as a component of a coating, particu-  
larly as a component of the sealing material, and  
in proportion from five to twenty percent by  
weight of the "dry solids" of the coating.

The preferred substances for this purpose are  
compounds containing carbon, sulphur and nitro-  
gen, three particular types being found highly  
advantageous. These types are: (1) thio-urea  
and substituted thio-ureas such as allyl thio-  
urea; (2) sulphur-containing amino acids such

as cystine, cysteine and methionine; and (3)  
sulpho-cyanates, particularly the alkali sulpho-  
cyanates such as potassium, sodium and am-  
monium sulpho-cyanates. These materials are  
innocuous in the quantities used (e. g., 2 to 4  
milligrams are available to the can contents for  
a No. 2 can) and of themselves produce no funda-  
mental change in the food product in the quan-  
tity utilized and brought into contact with the  
food product. Such materials may readily be in-  
corporated in the sealing compounds normally  
employed in the manufacture of cans and like  
containers, and in the quantities utilized, they  
produce no disadvantageous effect upon the con-  
sistency of the sealing compound mixture itself.

For example, in the canning of sour cherries, a  
sealing composition of resinous or rubber base  
may have ten percent of thio-urea incorporated  
therewith, in proportion by weight relative to the  
deposited materials (i. e., the "dry solids") left  
upon evaporation of solvents and dispersing  
agents present.

Other compositions of the nature set forth  
and claimed herein may be employed in pro-  
portions which may be varied according to the  
particular material utilized, the particular food  
product being preserved, and the nature of the  
corrodible container structure, and the relative  
proportion thereof with respect to the volume of  
the food product.

What is claimed, is:

1. A sheet metal container of tin plate for  
food products, of corrosive character comprising  
a body portion, ends seamed to the body portion,  
and a plastic sealing compound within the seams  
for hermetically sealing the container, said seal-  
ing compound being exposed to the food product  
contained in the container and including a base  
effective for sealing and having a substance uni-  
formly admixed therewith which operates upon  
contact with the food product to inhibit the  
corrosion thereby upon said tin plate, said sub-  
stance being one of the carbon, sulphur and  
nitrogen containing compounds consisting of  
thio-urea, allyl thio-urea, cystine, cysteine, me-  
thionine and alkali sulpho-cyanates.

2. A container structure as in claim 1 in which  
the inhibitor substance comprises thio-urea.

3. A container structure as in claim 1 in which  
the inhibitor substance comprises cystine.

4. A container structure as in claim 1 in which  
the inhibitor substance comprises alkali sulpho-  
cyanates.

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