Monsanto

FROM (NAME & LOCATION) O. N. Mueth Sauget, Illinois

DATE January 30, 1969

SUBJECT Recent Drum Failures

REFERENCE :

TO Mr. Elmo Campbell

cc: ~~V.~~ Brawley
D. C. Deck
S. E. Domahidy
F. J. Kusiak-G.O.
J. A. Morgan
G. E. Murray-JFQ
K. E. Smith-G.O.
W. L. Watson

As you are aware, during the past few months we have received numerous complaints on drum failures from customers. Almost all of these complaints, and subsequent drum returns, were due to the "leaking" of the material from the bottom of the drum. The majority of these leaks appeared to be caused by metal fatigue, to the "cushion ride" portion of the bottom head. All drums leaking in this manner show indentations made to the cushion ring or rings. The cause of, or source of these dents was not determined.

Recent investigation however, of the probable cause of these dents led to the discovery of identical type of indentations occurring during the unloading operations of the new drums. The driver, during the handling of the drums, would reach up and pull a drum from the top deck (especially on a three tier load) allowing the drum to fall upon another drum to break the fall. If the falling drum struck the stationary drum in a certain manner, it would dent the bottom head.

Representatives from Nesco were brought to the plant and shown some drums that had been damaged in this manner. Subsequent testing of this unloading technique by Nesco, showed that similar indentations were made in the bottom head of the drum. They agreed, with our findings, that the type of indentations to the cushion ride rings could result in metal fatigue and eventual leakers. The cushion ride drums are patented by Nesco, and are designed to flex during shipment or movement of the drum. However, with these indentations the metal cannot flex, and thus, the result is metal fatigue, and a leak! This fact has been substantiated by a metallurgy test conducted by Dwight Deck of our plant's material engineering group.

There is every reason to come to the conclusion, that this unloading technique has been the primary cuase of these drum failures. This is also true for possible "lining failures" as some of these indentations were of such a magnitude that they could and did cause damage to the interior lining. The product was thus allowed to reach metal and become contaminated, or to eat a whole through the metal, causing a leak.

Nesco Co., has informed me that they have taken the necessary steps to insure that their carrier will no longer use the practice of dropping one drum onto another drum to break its fall. Therefore,

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would you please once again instruct our plant container crew to observe the use of the "rubber mat" for the unloading of all drums. Also inform them to be sure that no driver follows the practice of dropping one drum upon another to break its fall. The crew should exercise as much caution as possible while unloading to avoid undue damage to the drum. These steps should result in a marked decrease in complaints due to metal fatigue.

The writer wishes to express his sincere thanks to Virgil Brawley, and Dwight Deck for their invaluable assistance in this drum failure investigation.

Orville N. Mueth
Distribution Engineer

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