J. E. Preiser
W. H. Coleman, II
J. M. Yonosko
L.E. Zeillmann
E. O. Fini
J. Winske
T. C. Douglas
F. E. Schmidt, Jr.
K. D. Green
J. R. Snedeker
F. E. Martin

To: C. A. Riley

From: E. J. Rossi

Date: July 28, 1989

Subject: RemClean™ Bore Cleaner

The following events and facts are pertinent to the subject product line.

Chronicle

RemClean™ sold previously by U. S. Products Corp., Pittsburg, PA under the trade mark Gold Medallion has been marketed since 1985. Remington introduced Rem Clean Bore Cleaner at the 1988 Sales Meeting as a new product for 1989.

Prior to introduction and after decline (because of a heavy workload) by Firearms Research Department to test RemClean, the product was submitted to both Haskel Laboratory for toxicity tests (Sept. 1987) and EDL (Sept. 1987) for abrasive wear tests. EDL was chosen at firearms Research's recommendation. Haskel Laboratory reported that RemClean was "environmentally safe" and could be labeled as such. EDL reported that because RemClean contains a silicon compound which imparts the mechanical cleaning action (as opposed to the chemical action of competitors bore cleaning solvents), RemClean is relegated an abrasive. However, the abrasive particles were less than five microns in diameter and hence equivalent to the "abrasiveness of baby powder". Therefore, EDL reported that RemClean is not detrimental to the firearms bore metal.

Because the accessory's business believed the abrasiveness issue could be a highly sensitive area and as further support to the "non-abrasiveness" findings of EDL a third study was conducted. The metallurgical school of Mellon University was contacted to provide an independent evaluation of RemClean as well as a comparative study of competing products. The Mellon report dated April 19, 1988 concluded that RemClean is safe for use in firearms (Report abstract is attached as exhibit A). The total report was submitted to Firearms Research for their review.

Market

Since market research data has shown that only 50% of all shooters clean their firearms at all and of those that do, only 15% (includes gun aficionados) clean their firearms more frequently than once per season, an education process was deemed necessary to enhance the potential customer base.

Hence Accessories business produced the brochure (attached as exhibit B) which extol the virtues of proper firearms maintenance and hence increased product usage. The brochure and the product labels address the recommended procedure for cleaning a firearm. More importantly to the issue of product acceptability, we find ourselves in the opportune position of affecting buyer behavior by educating the bulk of the general hunting/shooting public in the correct procedures to perform firearm's maintenance as well as exhibiting Remington's concern for his firearms investment. Apparently the need for an education process has reached the attention of competitors and outdoor writers alike judging from numerous current articles which discuss firearms maintenance. (Our tactical marketing plan for 1990 included the potential for a firearms care package). Hence the probability for misuse of RemClean is considerably reduced.

Remington Research Test

Circa first quarter 1989 Firearms Research conducted a test to "determine the affect of mistakenly applying "RemClean" to trigger assemblies of Remington firearms". The test is described in exhibit C.

Test Discussion

The test implies that after continuous application of RemClean directly to the trigger assembly and after 21,900 cycles the trigger assembly failed. The fact that the trigger assembly failed after 21,900 cycles (presumed to mean firings) is not disputable; however, the value of this test is highly disputable. The test does not simulate the recommended cleaning procedure nor does it represent realism. As the procedures recommend, a firearm properly maintained needs only one application of RemClean to achieve a properly cleaned bore. Hence 21,900 cycles requires that the individual must clean his firearm after each round is fired - a very arduous task equivalent to 3,650 hours or 456 man-days. Since we are dealing with less than 15% of the shooting/hunting public who clean their firearms even twice per season the probability of cleaning after each round is fired sets our exposure at a statistically insignificant value. Pragmatically we are in the time range of greater than the life span of an individual who economically must purchase or handload 21,900 rounds of ammunition plus purchase 1,400 bottles of RemClean at a cost of about $20,000.

Remington Autoloading Rifles

Obviously these rifles can not be cleaned through the breech toward the muzzle as recommended. The cleaning procedure must be reversed. Hence the bore cleaner may indeed enter the trigger assembly via "follow down"--presuming a cloth stopper in the breech is not used as should be. Since Remington autoloading rifles are purchased for deer hunting we must place this individual in the "do not clean" or "clean once per season" category. Market research also tells us that this consumer on average purchases and uses one box of cartridges per season. Again, a statistical analysis shows us that we are unable to arrive at the degree of exposure to which causes failure given the normal life span of people and firearms.

Conclusions

- *RemClean (also as Gold Medallion) has been on the market for four years without negative consumer incidence.*

- *Toxicity and wear tests (including a prestigious metallurgical University) show acceptability for fitness in use.*

- *Remington's firearms research shows that even after excessive misuse of the product the probability of failure exceeds life expectancy of individuals and firearms.*

Concluding

RemClean has been marketed by Remington since December 1988. Sales are currently $158,000 and additional pending orders of $66,000 are committed for shipment in 1989 for a total of $224,000 at a gross profit of $96,000 or 43%. While these numbers pale in comparison to a liability issue, the facts support that the next liability issue will have its epicenter in firearms not RemClean. Hence the case for exiting a high liability product area is stronger against firearms than RemClean.

Unless other issues have yet to surface: e.g., who should develop Apparel and Accessory Business products--R & D or the business?, then the business will continue to market RemClean.

Addendum

Apparently Firearms Research conducted a second study (6-27-89) to determine RemCleans™ effect on a 7400 autoloading rifle--test data attached as exhibit D.

From this study we learn that even after improper cleaning (RemClean left in the chamber) a 4% malfunction rate occurred which is well below the normal quality level for this rifle leaving the gallery. Proper cleaning as instructed on the product label would have prevented this malfunction entirely.

The study also confirms the data determined from the Mellon Metallurgical study who conducted an evaluation with a scanning electron microscope. The study determined that the plastically deformed layer of bore I. D. is removed by RemCleans' action as opposed to the need for "shooting out" this material as when a solvent cleaner is used. In fact it is this very same phenomenon that accounts for RemCleans' ability to improve accuracy. This information had been provided by H. P. White Laboratories when this firm was consulted as a potential evaluator of RemClean.

Not withstanding the market research data previously referenced concerning the actual behavior of end-users, I believe Firearms Research) has confirmed the superiority of RemClean over competitors products (since all others are solvents) moreover, they have eliminated any autoloading rifle concerns.

I continue to find no justification for removal of this product.