

Katherine E. Reed, Ph.D.
Staff Vice President

3M Environmental Technology
and Safety Services

900 Bush Avenue
Building 42-2E-26
PO Box 33331
St Paul, MN 55133-3331
651 778 4331

MR#62719

RECEIVED
OFFICE

8EHQ-1002-15210J

02 OCT 11 AM 7:57



CERTIFIED MAIL

8EHQ-02-15210

8403000000 5J

October 2, 2002

Document Processing Center (7407M)
EPA East – Room 6428 Attn: Section 8(e)
Office of Pollution Prevention and Toxics
US EPA
1200 Pennsylvania Ave., NW
Washington, DC 20460-0001

TSCA 8(E) SUBSTANTIAL RISK NOTICE ON: Complex adhesive composition

Dear Sir:

3M has identified a severe eye irritation reaction for a complex mixture used in a specialty spray adhesive in a one animal rabbit eye test. There have been no reports of eye irritation with this commercial product. We have received only two incidences of mild skin irritation. The severity of the effect was not expected, given the predicted toxicity of the components in the test material.

Composition of the tested sample (which is distributed for use in diluted form in the aerosol to approximately 50% with propellant) is attached. This composition is CONFIDENTIAL.

Revision to labels and consideration of reformulation is underway.

Please contact Dr. Robert Roy, 651-736-3692, for further information.

Sincerely,

Katherine E. Reed
Staff Vice President, Environmental Technology and Safety Services

Attachment I: Acute Eye Irritation in Rabbits, MB Research Laboratories T-7777.1
Attachment II: Composition of test material

RECEIVED
OFFICE
2002 OCT 28 PM 1:09

COMPANY SANITIZED

MB Research Laboratories

1765 Wentz Road
P.O. Box 178
Spinnerstown, PA 18968
phone (215) 536-4110
fax (215) 536-1816

VOLUME II

Study Title : Acute Eye Irritation in Rabbits

Test Article : T-7777.1

Data Requirements : EPA 40 CFR 158.340, Guideline Reference
OPPTS 870.2400

Author : Daniel R. Cerven, M.S., Study Director

Study Completed On : August 27, 2002

Performing Laboratory : MB Research Laboratories
1765 Wentz Road
P.O. Box 178
Spinnerstown, PA 18968

MB Research Project # : MB 02-10244.04

MB Research Protocol # : 1200M

Sponsor : 3M Corporate Toxicology
Building 220-2E-02
St. Paul, MN 55144-1000

Citation : Daniel R. Cerven, M.S. (2002)
Unpublished Report by MB Research
Laboratories

RECEIVED
02 OCT 11 AM 7:31

MB Research Laboratories

Study Title : Eye Irritation in Rabbits
Project # : MB 02-10244.04
Test Article : T-7777.1
Protocol : 1200M

STATEMENT OF NO DATA CONFIDENTIALITY CLAIMS

No claim of confidentiality is made for any information contained in the above study on the basis of its falling within the scope of FIFRA § 10(d)(1)(A), (B) or (C).

COMPANY : 3M CORPORATE TOXICOLOGY

COMPANY AGENT : _____

TITLE : _____

SIGNATURE : _____

DATE : _____

MB Research Laboratories

Study Title : Eye Irritation in Rabbits
Project # : MB 02-10244.04
Test Article : T-7777.1
Protocol : 1200M

STATEMENT OF DATA CONFIDENTIALITY CLAIMS

Information claimed confidential on the basis of its falling within the scope of FIFRA § 10(d)(1)(A), (B) or (C) has been removed to a confidential appendix, and is cited by cross-reference number in the body of the above study.

COMPANY : 3M CORPORATE TOXICOLOGY

COMPANY AGENT : _____

TITLE : _____

SIGNATURE : _____

DATE : _____

MB Research Laboratories

Study Title : Eye Irritation in Rabbits
Project # : MB 02-10244.04
Test Article : T-7777.1
Protocol : 1200M

GOOD LABORATORY PRACTICES STATEMENT

This study meets the Good Laboratory Practice requirements of EPA 40 CFR parts 792 and 160 and as specified in The Testing of Chemicals, published by the Organization for Economic Cooperation & Development (OECD), 1997.

SUBMITTER : 3M CORPORATE TOXICOLOGY

Signature Date

SPONSOR : 3M CORPORATE TOXICOLOGY

Rob Ry 9.19.2002

Signature Date

STUDY DIRECTOR :

Daniel R. Cerven 27 Aug 02

Daniel R. Cerven, M.S. Date
MB RESEARCH LABORATORIES

MB Research Laboratories

PROJECT NUMBER : MB 02-10244.04
TEST ARTICLE : T-7777.1
SPONSOR : 3M CORPORATE TOXICOLOGY
TITLE : Acute Eye Irritation in Rabbits
PROTOCOL # : 1200M

A B S T R A C T

Objective: To determine the irritant and/or corrosive effects, if any, of a test article when instilled into the rabbit eye. This study was designed to comply with the standards set forth in EPA Health Effects Testing Guidelines, OPPTS Series 870.2400, final guideline, August 1998.

Method Synopsis: Initially, one healthy New Zealand White rabbit (female), free from evidence of ocular irritation and corneal abnormalities, was dosed with T-7777.1. The test article (0.1 ml) was placed into the conjunctival sac of one eye. The eye was examined and scored by the Draize technique at 1, 24, 48, and 72 hours and again on day 7 postdose. Sodium fluorescein dye procedures were used at the 24, 48, 72 hours and again on day 7 observation interval. Based on the results of this initial animal, no further dosing was performed. The primary eye irritation score for this rabbit, each day, was calculated. Body weights were recorded pretest.

Summary: Corneal opacity, iritis and conjunctival irritation persisted through day 7 in the one dosed eye. At this time, the study was terminated due to the severity of the responses.

There were no abnormal physical signs noted during any observation period.

Conclusion: Ocular administration of T-7777.1 produced corneal opacity and irritation which would not have cleared by day 21.

MB Research Laboratories

Study Title : Eye Irritation in Rabbits
Project # : MB 02-10244.04
Test Article : T-7777.1
Protocol : 1200M

OBJECTIVE

To determine the irritant and/or corrosive effects, if any, of a test article when instilled into the rabbit eye. This study was designed to comply with the standards set forth in EPA Health Effects Testing Guidelines, OPPTS Series 870.2400, final guideline, August 1998.

TEST ARTICLE

Label Identity : T-7777.1
Supplied By : 3M Corporate Toxicology
Date Received : 6/25/02
Storage : Room temperature and humidity.
Description : Yellow viscous liquid
Sample Preparation : The test article was used as received.

TEST DATES

Study Initiation (date protocol signed) : 6/27/02
Experimental Start Date (1st exposure to test substance) : 7/01/02
Experimental Term Date (last date data collected) : 7/08/02
Draft Report Signed (if applicable) : 7/31/02
Final Report Signed (study completion) : 8/27/02

EXPERIMENTAL DESIGN

Test Animals

New Zealand White rabbits were received from Sgarlat's Rabbitry, Harvey's Lake, PA on 05/15/02 and equilibrated for at least five days. Only animals in apparent good health were made available for study assignment. Prior to being selected for this study, both eyes of each animal were examined according to the Draize technique for any evidence of irritation or abnormalities of the cornea, iris and/or conjunctiva. A Mini-Maglite® flashlight equipped with a high intensity bulb was used to aid in the examination. One rabbit (female), free from evidence of ocular irritation or abnormalities, was assigned to this study without conscious bias.

The animal was born 02/20/02. The pretest body weight was 2.6 kg. The animal was identified by cage notation and a uniquely numbered metal eartag. The animal was housed individually in a suspended cage. Bedding was placed beneath the cage and changed at least three times/week. Fresh PMI Rabbit Chow (Diet #5321) was provided daily. Water was available ad libitum. The animal room, reserved exclusively for rabbits on acute tests, was temperature controlled, had a 12 hour light/dark cycle and was kept clean and vermin free.

MB Research Laboratories

Study Title : Eye Irritation in Rabbits
Project # : MB 02-10244.04
Test Article : T-7777.1
Protocol : 1200M

EXPERIMENTAL DESIGN (continued)

Dosing

The test article (0.1 ml) was placed by syringe into the conjunctival sac which was formed by gently pulling the lower eyelid away from the eye. After instillation, the lid was held together for approximately one second to insure adequate distribution of the test article. One eye was dosed. The contralateral eye served as a control.

Type and Frequency of Observations

The treated eye was examined for irritation of the cornea, iris and conjunctiva at 1, 24, 48, and 72 hours and again on day 7 postdose. Sodium fluorescein dye procedures were used at the 24, 48, 72 hours and again on day 7 observation interval. These examinations were performed using a Mini-Maglite® flashlight equipped with a high intensity bulb. Ocular reactions were graded according to the numerical Draize technique.

Pretest body weight was recorded.

The general health of the animal was monitored at each observation time.

Analysis of Data

Eye irritation is the production of reversible changes in the eye following application of the test article to the anterior surface of the eye.

Eye corrosion is the production of irreversible tissue damage to the eye following application of the test article to the anterior surface of the eye.

Retention of Data

The raw data is filed at MB Research by project number. The final report is filed at MB Research by sponsor name and MB project number.

The test article will be returned to the sponsor following submission of the report.

Amendment to the Protocol

There were no amendments to the protocol.

MB Research Laboratories

Study Title : Eye Irritation in Rabbits
Project # : MB 02-10244.04
Test Article : T-7777.1
Protocol : 1200M

RESULTS AND DISCUSSION

1. Ocular findings (Table 1)

Corneal opacity, iritis and conjunctival irritation persisted through day 7 in the one dosed eye. At this time the study was terminated due to the severity of the responses.

2. Systemic Observations (Table 1)

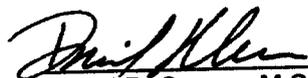
There were no abnormal physical signs noted during any observation period.

CONCLUSION

Ocular administration of T-7777.1 produced corneal opacity and irritation which would not have cleared by day 21.

FINAL REPORT

Approved by:


Daniel R. Cerven, M.S.
Study Director

2/14/02
Date

MB Research Laboratories

Study Title : Eye Irritation In Rabbits
 Project # : MB 02-10244.04
 Test Article : T-7777.1
 Protocol : 1200M

| Table 1 | | Ocular Findings and Systemic Observations | | | | | | |
|----------|------|---|------------------------------|--------|---------|---------|---------|-------|
| An.#/Sex | Item | Tissue | Reading | Hour 1 | Hour 24 | Hour 48 | Hour 72 | Day 7 |
| G1254/F | A | Cornea | Opacity | 2 | 3 | 3 | 3 | 4 |
| | B | | Area | 2 | 2 | 2 | 2 | 2 |
| | | | 1. Total=(AxB)x5 | 20 | 30 | 30 | 30 | 40 |
| | C | Iris | | 1 | 1 | 1 | 1 | 1 |
| | | | 2. Total=Cx5 | 5 | 5 | 5 | 5 | 5 |
| | D | Conjunctiva | Redness | 2 | 3 | 3 | 3 | 3 |
| | E | | Chemosis | 3 | 2 | 2 | 2 | 3 |
| | F | | Discharge | 2 | 2 | 2 | 2 | 2 |
| | | | 3. Total=(D+E+F)x2 | 14 | 14 | 14 | 14 | 16 |
| | | | Total=1+2+3 | 39 | 49 | 49 | 49 | 61 |
| | | | Systemic Observations | A | A | A | A | A |
| | | | Sodium Fluorescein | | 2 | 3 | 2 | 1 |
| | | | Pretest Body Weight - 2.6 kg | | | | | |

A = normal

MB Research Laboratories

Study Title : Eye Irritation in Rabbits
 Project # : MB 02-10244.04
 Test Article : T-7777.1
 Protocol : 1200M

SCALE FOR SCORING OCULAR LESIONS¹

(1) CORNEA:

| | | |
|---|----------------------|----------------|
| (A) Opacity: Degree of density (area most dense taken for reading): | | 0- |
| No ulceration or opacity | | 1 ² |
| Scattered or diffuse areas of opacity (other than slight dulling of normal luster), details of iris clearly visible | | 2 ² |
| Easily discernible translucent area, details of iris slightly obscured | | 3 ² |
| Opalescent areas, no details of iris visible, size of pupil barely discernible | | 4 ² |
| Opaque cornea, iris not discernible through the opacity | | |
| (B) Area of cornea involved: | | 1 |
| One quarter (or less) but not zero | | 2 |
| Greater than one-quarter, but less than one-half | | 3 |
| Greater than one-half, but less than three-quarters | | 4 |
| Greater than three quarters up to whole area | | |
| SCORE EQUALS A x B x 5 | Maximum Total | 80 |

(2) IRIS:

| | | |
|---|----------------------|----------------|
| (A) Normal | | 0 |
| Folds above normal, congestion, swelling, circumcorneal injection (any or all of these or combination of any thereof), iris still reacting to light (sluggish reaction is positive) | | 1 ² |
| No reaction to light, hemorrhage, gross destruction (any or all of these) | | 2 ² |
| SCORE EQUALS A x 5 | Maximum Total | 10 |

(3) CONJUNCTIVAE:

| | | |
|---|----------------------|----------------|
| (A) REDNESS (refers to palpebral and bulbar conjunctivae excluding cornea & iris): | | 0 |
| Blood vessels normal | | 1 |
| Some blood vessels definitely hyperemic (injected) | | 2 ² |
| More diffuse, deeper crimson red, individual vessels not easily discernible | | 3 ² |
| Diffuse beefy red | | |
| (B) CHEMOSIS | | 0 |
| No swelling | | 1 |
| Any swelling above normal (includes nictitating membranes) | | 2 ² |
| Obvious swelling with partial eversion of lids | | 3 ² |
| Swelling with lids about half closed | | 4 ² |
| Swelling with lids more than half closed | | |
| (C) DISCHARGE | | 0 |
| No Discharge | | 1 |
| Any amount different from normal (does not include small amounts observed in inner canthus of normal animals) | | 2 |
| Discharge with moistening of the lids and hairs just adjacent to lids | | 3 |
| Discharge with moistening of the lids and hairs and considerable area around the eye | | 3 |
| SCORE EQUALS (A+B+C)x2 | Maximum Total | 20 |

The maximum total score is the sum of all scores obtained for the cornea, iris and conjunctivae.

¹Draize, J. H. et al. J. Pharm. Exp. Ther. 82:377-390, 1944.

²Indicates a positive response

ULTRAVIOLET FLUORESCENIN SCAN SCORING CODE:

- 0 = Negative
- 1 = Positive with an area 1/4 or less
- 2 = Positive with an area >1/4 but <1/2
- 3 = Positive with an area >1/2, but <3/4
- 4 = Positive with an area >3/4, up to entire area

MB Research Laboratories

Study Title : Eye Irritation in Rabbits
 Project # : MB 02-10244.04
 Test Article : T-7777.1
 Protocol : 1200M

QUALITY ASSURANCE EVALUATION

The Quality Assurance Unit has inspected an in-life phase of this study, audited the raw data and the report and determined that the methods and results contained herein accurately reflect the raw data. No deviations from the approved protocol or Standard Operating Procedures were made without proper authorization and documentation. A summary of the compliance inspections is presented below.

| Date of Inspection | Phase | Performed By | Date Findings Reported to | |
|--------------------|--------------------|--------------|---------------------------|-----------|
| | | | Mgmt. | Sty. Dir. |
| 7/01/02 | Sample preparation | Tammy Smith | 8/27/02 | 8/27/02 |
| 7/16/02 | Raw data audit | Tammy Smith | 8/27/02 | 8/27/02 |
| 7/26/02 | Draft report audit | Betty Salyer | 8/27/02 | 8/27/02 |
| 8/27/02 | Final report audit | Betty Salyer | 8/27/02 | 8/27/02 |


 Betty Salyer / Date
 Quality Assurance Unit

MB RESEARCH LABORATORIES
STANDARD PROTOCOL
1200M

Appendix 1
MB 02-10244.04

1.0 TITLE OF STUDY: ACUTE EYE IRRITATION IN RABBITS

2.0 OBJECTIVE: To determine the irritant or corrosive effects, if any, of a test article when instilled into the rabbit eye. This study is designed to comply with the standards set forth in EPA Health Effects Testing Guidelines, OPPTS Series 870.2400, final guideline, August 1998.

2.1: If the pH of the test article is less than 2.5 or greater than 11, consideration will be given to using only one animal.

3.0 TEST ARTICLE:

3.1: Source: All test articles will be supplied by the sponsor. The chemical identification and analysis of the purity, strength, pH, stability, solubility, uniformity and safety is the responsibility of the sponsor.

3.2: Label: Each test article will be identified by source, name and/or code number, date of receipt at MB Research, and MB Project Number.

3.3: Storage: The test article will be stored at room temperature and humidity unless otherwise specified by the sponsor.

3.4: Hazards: Based on the information provided by the sponsor, appropriate routine safety precautions will be exercised in the handling of the test article.

3.5: Vehicle: None.

4.0 GENERAL TEST SYSTEM PARAMETERS:

4.1: Animal Requirements:

- 4.1.1: Total Number of Animals : 3 (one animal may be used if severe effects are expected)
- 4.1.2: Number of Groups : 1
- 4.1.3: No. Animals/Group : 3
- 4.1.4: Species/Strain/Sex : Rabbit/New Zealand White/Either Sex
- 4.1.5: Age : At least 12 weeks

4.2: Justification for Species and Number of Animals:

4.2.1: Species: The rabbit is the system of choice because it has been shown to be sensitive to the irritant and corrosive effects of a variety of chemicals and it is a standard animal model for ocular irritation studies.

4.2.2: Number of Animals: Three animals per group is the number specified in the regulatory requirements unless the test article is known or suspected of being highly irritating or corrosive, in which case only one animal will be used initially.

4.3: Husbandry:

4.3.1: Housing: Animals will be housed 1/cage in suspended cages which conform to the size recommendations in Guide for the Care and Use of Laboratory Animals DHEW (NIH). Absorbent white paper bedding or Beta Chip™ bedding, placed beneath the cage, will be changed at least three times/week. The animal room, reserved exclusively for rabbits, is temperature controlled, and is equipped with a 12-hour light/dark cycle. Temperature and humidity will be continuously recorded using automatic recording devices.

4.3.2: Equilibration: The test animals will be conditioned to the housing facilities for at least five (5) days prior to experimental start.

4.3.3: Food: Fresh PMI Rabbit Chow (Diet #5321) will be provided daily.

4.3.4: Water: Water will be available ad libitum.

4.3.4.1: Analysis of Water and Acceptable Levels of Contaminants: Analysis of water is performed 4 times per year and results are compared against a list of acceptable levels of contaminants as provided by the water testing laboratory.

4.4: Control of Bias: From the available pool of animals, healthy rabbits will be assigned to this study without conscious bias.

4.5: Identification:

4.5.1: Cage: Each cage will be identified by a cage tag indicating the date of dosing, test article identification, MB project number, dose level, number and sex of animals.

4.5.2: Animal: Each animal will be identified by an uniquely numbered metal eartag.

5.0 EXPERIMENTAL DESIGN:

5.1: Route of Administration: The test article will be instilled into the conjunctival sac of the rabbit eye.

5.1.1: Justification for Route of Administration: The ocular route of administration is chosen because human exposure may occur via this route and because it is specified in the test guidelines.

5.2: Dose Level: 0.1 ml (liquid or semi-solid of appropriate viscosity), 0.1 ml equivalent of a solid (not to exceed 100 mg) or a one-second burst from a pressurized container at a distance of 10 cm will be delivered to one eye of each rabbit.

5.3: Frequency: One time.

5.4: Dose Schedule:

| <u>GROUP</u> | <u>DOSE</u> | <u># OF ANIMALS</u> |
|--------------|-------------------------|---------------------|
| Test Article | 0.1 ml or ml equivalent | 3 ¹ |

¹One animal may be used if severe effects are anticipated.

6.0 DOSING PROCEDURE:

6.1: Site Preparation: Within one day prior to instillation of the test article, both eyes of each rabbit will be examined. Animals with corneal injury or ocular irritation or defects will be eliminated as candidates for study assignment.

6.2: Sample Preparation: The pH of the test article will be measured and documented in the study file. Unless otherwise specified by the sponsor, the test article will be prepared as follows:

6.2.1: Liquids and semi-solids of appropriate viscosity will be used as received and dosed by volume (ml).

6.2.2: Pump Sprays: The liquid will be expelled and 0.1 ml collected and instilled into the eye in the same manner as described for liquids.

6.2.3: Solids will be ground to a fine dust, if possible, and dosed as a 0.1 ml equivalent, not to exceed 100 mg. The weight of 0.1 ml equivalent will be recorded.

6.2.4: Aerosols: In the case of pressurized aerosol containers, the test eye will be held open and the aerosol test article will be sprayed in a single burst of approximately 1 second from a distance of 10 cm, directly in front of the eye. The dose amount may be calculated by weighing the container before and after use.

6.3: Sample Description: The observable physical properties of the test article will be recorded.

6.4: Treatment:

6.4.1: Application: The stated dose of the test article will be placed by syringe or syringe-type applicator into the conjunctival sac which will be formed by gently pulling the lower eye lid away from the eye. In the case of aerosols, the eye will be held open to receive the one-second burst (refer to section 6.2.4). After instillation, the lids will be held together for approximately one (1) second to insure adequate distribution of the test article. One eye of each test animal will be dosed; the contralateral eye will serve as a control.

6.4.1.1: Anesthetic: If it is believed that the test article could cause extreme pain, a local anesthetic may be used prior to instillation of the test article. The type and concentration of the anesthetic will be carefully selected to ensure that no significant differences in reaction to the test substance will result from its use. Use of an anesthetic will be fully documented including the manufacturer/brand name, concentration and amount used. The control eyes will be similarly anesthetized.

6.4.2: Washed Eye: The eyes may be washed 24 hours after instillation if deemed appropriate.

7.0 TYPE & FREQUENCY OF OBSERVATIONS:

7.1: In Vivo:

7.1.1: Ocular Observations: The treated eye of each animal will be examined and scored for irritation of the cornea, iris and conjunctiva at 1, 24, 48 and 72 hours postdose. A hand held source of illumination, i.e., a Mini-Maglight® flashlight equipped with a high intensity bulb, will be used to aid in scoring. Fluorescein dye procedures will be used following the 24 hour scoring interval and following each subsequent scoring interval until no stain retention is observed.

If an ocular anesthetic is used, the control eye will be observed for irritation at the same time intervals as the treated eye. Ocular reactions are graded according to the following scale. Additional signs are described.

7.1.1: Ocular Observations - cont'd:**SCALE FOR SCORING OCULAR LESIONS¹****(1) CORNEA:**

| | | |
|-----|---|-------------------------|
| (A) | Opacity: Degree of density (area most dense taken for reading): | 0 |
| | No ulceration or opacity | |
| | Scattered or diffuse areas of opacity (other than slight dulling of normal luster), details of iris clearly visible | 1 ² |
| | Easily discernible translucent area, details of iris slightly obscured | 2 ² |
| | Opalescent areas, no details or iris visible, size of pupil barely discernible | 3 ² |
| | Opaque cornea, iris not discernible through the opacity | 4 ² |
| (B) | Area of cornea involved: | 1 |
| | One quarter (or less) but not zero | 2 |
| | Greater than one-quarter, but less than one-half | 3 |
| | Greater than one-half, but less than three-quarters | 4 |
| | Greater than three quarters up to whole area | |
| | SCORE EQUALS A x B x 5 | Maximum Total 80 |

(2) IRIS:

| | | |
|-----|---|-------------------------|
| (A) | Values: | 0 |
| | Normal | |
| | Folds above normal, congestion, swelling, circumcorneal injection (any or all of these or combination of any thereof), iris still reacting to light (sluggish reaction is positive) | 1 ² |
| | No reaction to light, hemorrhage, gross destruction (any or all of these) | 2 ² |
| | SCORE EQUALS A x 5 | Maximum Total 10 |

(3) CONJUNCTIVAE:

| | | |
|-----|---|-------------------------|
| (A) | REDNESS (refers to palpebral and bulbar conjunctivae excluding cornea & iris): | 0 |
| | Blood vessels normal | 1 |
| | Some blood vessels definitely hyperemic (injected) | 2 ² |
| | More diffuse, deeper crimson red, individual vessels not easily discernible | 3 ² |
| | Diffuse beefy red | |
| (B) | CHEMOSIS | 0 |
| | No swelling | 1 |
| | Any swelling above normal (includes nictitating membranes) | 2 ² |
| | Obvious swelling with partial eversion of lids | 3 ² |
| | Swelling with lids about half closed | 4 ² |
| | Swelling with lids more than half closed | |
| (C) | DISCHARGE | 0 |
| | No Discharge | |
| | Any amount different from normal (does not include small amounts observed in inner canthus of normal animals) | 1 |
| | Discharge with moistening of the lids and hairs just adjacent to lids | 2 |
| | Discharge with moistening of the lids and hairs and considerable area around the eye | 3 |
| | SCORE EQUALS (A+B+C) x 2 | Maximum Total 20 |

The maximum total score is the sum of all scores obtained for the cornea, iris & conjunctivae. Max. Total = 110.

¹Draize, J. H. et al. J. Pharm. Exp. Ther. 82:377-390, 1944.

²Indicates a positive response

ULTRAVIOLET FLUORESCIN SCAN SCORING CODE:

- 0 = Negative
- 1 = Positive with an area 1/4 or less
- 2 = Positive with an area >1/4 but <1/2
- 3 = Positive with an area >1/2, but <3/4
- 4 = Positive with an area >3/4, up to entire area

7.1.1.1: Extension: Upon authorization from the sponsor, this study may be extended to establish reversibility or irreversibility of ocular reactions, but need not exceed 21 days.

7.1.2: Physical Signs: Observations for mortality, toxicity and pharmacological effects will be recorded at each ocular observation period.

7.1.3: Body Weights will be recorded immediately pretest.

7.2 Post Mortem:

7.2.1: Sacrifice: Animals showing severe and enduring signs of distress and pain or animals in a moribund condition and not expected to survive until the next observation interval will be humanely sacrificed using CO₂. At study termination, all survivors will be humanely sacrificed in the same manner.

7.2.2: Necropsy: Deaths only.

7.2.3: Tissues: None.

8.0 TEST DURATION:

The duration of this study is 4 days unless extended as provided in section 7.1.1.1.

9.0 ANALYSIS OF DATA:

9.1: Eye Irritation is the production of reversible changes in the eye following instillation of the test article to the anterior surface of the eye.

9.2: Eye Corrosion is the production of irreversible tissue damage in the eye following instillation of the test article to the anterior surface of the eye.

10.0 REVISION OF THE PROTOCOL:

Any amendment to or deviation from this protocol will be fully documented in the study file, including the reason for the change, the authority for said change and the date thereof.

11.0 RECORDS TO BE MAINTAINED:

11.1: Collection of Data: All data generated during the conduct of this study will be recorded in ink on worksheets. All entries will be dated, initialed and verified by another person.

11.2: Final Report: The final report will include, but not be limited to:

- Species, strain, sex, age and source of test animals
- Equilibration, housing conditions including number of animals/cage, bedding material, light/dark cycle and diet
- Tabulation of irritant/corrosive response data for each animal at each observation interval
- Narrative description of the degree and nature of irritation or corrosion observed
- Description of procedure used to score irritation
- Description of systemic effects, pretest body weights
- Manufacturer, source, purity, lot/batch number and any other information regarding the test article, if supplied by the sponsor

11.3: Retention of Data:

11.3.1: Raw Data will be filed at MB Research by project number.

11.3.2: Final Reports will be filed at MB Research by sponsor name and MB project number.

11.3.3: Test Article: Any remaining test article will be returned to the sponsor upon submission of the study report.

12.0 GOOD LABORATORY PRACTICES:

This study will be conducted in accordance with the Good Laboratory Practices of the EPA, 40 CFR 160 and 792, FDA 21 CFR 58, and the OECD, The Testing of Chemicals, 1997.

12.1: Protocol: MB Research will have on file a copy of this protocol, signed and dated by both the responsible MB Study Director and the sponsor's Project Manager.

12.2: Quality Assurance: The Quality Assurance Unit will inspect at least one in-life phase of this study, audit the raw data and audit the report in accordance with the Standard Operating Procedures of MB and the applicable regulatory requirements.

STUDY TITLE: Acute Eye irritation - Rabbits

3M Corporate Toxicology Project#: (CTP) _____

Draft Report: Yes No

Reports and Invoices to be sent to: Melinda Mitchell

Appendix 1
MB 02-10244.04

MB RESEARCH LABS
PROTOCOL NO: 1200M
PAGE NO : -8 of 9-

13.0 SPONSOR REQUEST:

13.1: The sponsor requests that this protocol be implemented:

As written (or) Amended per attached description of amendments

13.2: GLP Compliance: No (GLP not required) Yes (indicate agency) EPA FDA OECD

13.3: Test Article will be identified in the report and supporting documentation exactly as indicated below:

T-7777.1

pH (when applicable): _____ Lot/Batch #: _____

Physical Description: Milk liquid Special Handling Precautions: None Flammable

Storage Requirements: Room Temperature Refrigerated Other: _____

13.3.1: Is the test article expected to have a severely irritating or corrosive effect on the rabbit eye?

No (or) Yes (if yes, only 1 animal will be used initially.) Possible, so use one initially

13.3.2: Vehicle: not applicable (or) Vehicle Identity: _____

13.3.3: Test Article Characterization is routinely required in support of data submissions. (EPA 40 CFR 160.105 and 792.105; FDA 21 CFR 58.105, OECD 6.2). This information is:

Attached Filed with sponsor Study will not be submitted to a Regulatory Agency

13.3.4: Material Safety Data Sheet/Letter of Hazard Supplied: Yes No Article

13.3.5: DOT Hazardous Material: No Yes (indicate DOT shipping Name) ORM-D

EPA Hazardous Waste: No Yes (indicate EPA Waste Number) _____

13.3.6: Return Residual Test Article: (indicate name, address and phone #): _____

Jim Beardsley, EAD, 3M Center Building 209-1N-20

Shipping Instructions (Call or refer to Study Initiation Information for costs) St. Paul MN

UPS / Ambient temperature (no charge) Express carrier / Ambient temperature 55144
 Overnight carrier / Dry Ice Overnight carrier / Ice packs

13.4: Authorization Statement: This protocol is authorized for implementation at MB Research. This study is necessary to estimate the toxic effects of the test compound. To the best of my knowledge and information, this test is not an unnecessary duplication of any previous studies.

13.4.1: Confidentiality: Study results and reports will be released only to those individuals identified in sponsor's letter of March 3, 2001, signed by Marvin T. Case, Director of Corporate Toxicology.

BY: [Signature]
(signature)

ROBERT ROY, Ph.D.
(type/print name)

Senior Toxicology Specialist
(title)

FOR: 3M Corporate Toxicology 6/10/02
(company) (date)

Bldg. 220-2E-02
(address)

St. Paul MN 55144-1000
(city) (st) (zip)

651-736-0443 651-733-1773
(phone) (fax)

14.0 **MB RESEARCH ACKNOWLEDGMENT:** Request for implementation of this protocol and receipt of the test article is acknowledged by MB Research.

14.1 **Test Article Identity:** T-777.1

14.1.1: **Date Received:** 6/25/02

14.1.2: **Physical Description:** YELLOW VISCOUS LIQUID

14.2: **MB Project Number** assigned to this study: 02-10244.04

14.3: **Animal Supplier:** The Licensed USDA animal supplier is: Spawlf

14.4: **Proposed Study Dates:**

14.4.1: **Experimental Start Date:** whf 1 I/02

14.4.2: **Experimental Term Date:** whf 1 II/02

14.4.3: **Study Completion Date (Submission of Report):** Within 6 weeks following Experimental Term Date.

14.5: **Approval:** There are currently no suitable non-animal alternatives to this study as determined according to MB Research SOP Vol. III A. This protocol is designed to avoid or minimize discomfort. The procedures will be performed by personnel thoroughly trained in the humane care and use of laboratory animals. If pain does occur as a result of the nature of the test article being used, it will be addressed according to MB SOP Vol. III A. This protocol is approved for implementation at MB Research by the below named MB Study Director.

[Signature] 27 Jun 02

BY _____ (date)
Study Director
Testing Facility MB Research Laboratories
1765 Wentz Road, P. O. Box 178
Spinnerstown, PA 18968

This protocol was originally reviewed by the Institutional Animal Care and Use Committee (IACUC) of MB Research on the date indicated below and found to be in compliance with acceptable standards of animal welfare and humane care. The IACUC committee will review this protocol on an annual basis. This review will be documented in the IACUC minutes and included in the semi-annual report to the institutional official.

DATE: 2/13/92

Attachment II
T-7777.1 Test Material

| CAS No. | Name | % in Material |
|-----------------------|--|----------------------|
| 67-64-1 | ACETONE | 29.830000 |
| 109-66-0 | PENTANE | 15.264070 |
| 79-20-9 | METHYL ACETATE | 9.741200 |
| 110-82-7 | CYCLOHEXANE | 5.024970 |
| 64742-48-9 | HYDROTREATED HEAVY NAPHTHA (PETROLEUM) | 4.110000 |
| Unknown 14807-96-6 | ANTIOXIDANT/STABILIZER/DUSTING AGENT TALC | 0.228600 0.228600 |
| 67-56-1 | METHYL ALCOHOL | 0.099400 |
| 7732-18-5 | WATER | 0.099400 |
| Unknown | RELATED HYDROCARBONS | 0.045930 |
| 78-78-4 | ISOPENTANE | 0.030620 |
| 627-20-3 | CIS-BETA-AMYLENE | 0.015310 |
| 842-07-9 | C.I. SOLVENT YELLOW 14 | 0.010000 |

SANITIZED