

D.C. STANDARD PROCEDURE BOOK

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BROWN & WILLIAMSON TOBACCO CORPORATION

DEVELOPMENT CENTER

STANDARD INSPECTION PROCEDURE BOOK

JUNE, 1989

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DISTRIBUTION

B. A. BANDY

DEVELOPMENT CENTER - PRIMARY

DEVELOPMENT CENTER - FABRICATION

PRODUCT DEVELOPMENT

RESEARCH SERVICES

INTERNATIONAL PRODUCT DEVELOPMENT

LEAF RESEARCH

PRODUCT INTEGRITY

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BROWN & WILLIAMSON TOBACCO CORPORATION

STANDARD INSPECTION PROCEDURES

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SECTION A

INCOMING MATERIALS INSPECTION - NON TOBACCO

- A1 - PERFORATED TIPPING - PERMEABILITY, WIDTH, PERFORATIONS LOCATIONS
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A1

BROWN & WILLIAMSON TOBACCO CORPORATIONSTANDARD INSPECTION PROCEDURE

TITLE: INCOMING MATERIALS INSPECTION - PERFORATED TIPPING
PERMEABILITY, LOCATION OF PERFORATIONS, AND TIPPING WIDTH

DEPARTMENT: QUALITY ASSURANCE LABORATORY

BRANCH: DEVELOPMENT CENTER

SAMPLING PROCEDURE:

1. Every bobbin of perforated tipping received by Development Center will be inspected.
2. Discard approximately 10 feet of tipping from the beginning of each bobbin and then remove the next 10 feet of material from each.
3. Place each 10-foot strip in a jar along with a label containing the information listed in Item 5. Place a second label containing this information on each bobbin.
4. Record the data and bobbin number on the core of each bobbin.
5. Code two labels for each bobbin as in the following example:

| <u>ITEM</u> | | <u>CODE</u> |
|------------------------------|---|-------------------------|
| Tipping | | T |
| Supplier | { Golden Belt Hermetite Ecusta Archer | G H E A |
| Width (mm) | | 60 |
| Types of Perf. | { Mechanical Micro Mechanical Laser Micro Laser Electrostatic | M MM L ML E |
| No. of Lines of Perforations | | 2 |

(Continued on Next Page)

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INCOMING MATERIALS INSPECTION - PERFORATED TIPPING PERMEABILITY,
LOCATION OF PERFORATIONS, AND TIPPING WIDTH

SAMPLING PROCEDURE: (Continued)

| <u>ITEM</u> | <u>CODE</u> |
|---------------------------------------|-------------|
| Target Permeability | 1600 |
| Location of Perfs. From Mouthend (MM) | 15 |
| Month Sampled | 12 |
| Day Sampled | 07 |
| Bobbin Number | 006 |
| Allow Space for Actual Permeability | _____ |

6. Deliver the jars of tipping to Development Center's Quality Assurance Laboratory.

TESTING PROCEDURE:

1. Measure the width of each strip of tipping paper. The allowable width limits are $\pm 1.0\text{mm}$. If any three strips exceed the allowable limits, stop the analysis and notify the Materials Supervisor.
2. Record the bobbin number and width on a Development Center Incoming Tipping Inspection Form.
3. Determine the location of the rows of perforations as follows:
 - a. Identify one row of perforations of each strip as Row A and the other as Row B.
 - b. Measure the distance from the slit edge of a strip of tipping to the end of last line of perforations in Row A.

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INCOMING MATERIALS INSPECTION - PERFORATED TIPPING PERMEABILITY,
LOCATION OF PERFORATIONS, AND TIPPING WIDTH

TESTING PROCEDURE:

3. Determine the location of the rows of perforations as follows:
(Continued)
 - c. Repeat this measurement to determine the distance of the last line of perforations in Row B is from the slit edge of a strip of tipping.
 - d. Add these two calculations, subtract the total from the known width of the strip of tipping and then divide the answer by 2. This will give the average distance from the mouth end of the tipping to the beginning of the first line of perforations in each row. The allowable limits for variability in the position of the beginning of the rows of perforations in relationship to the mouth end of the tipping is $\pm 1.0\text{mm}$. If more than two strips are out of the limits, notify the Materials Supervisor.
 - e. Record the distances for Rows A and B on the Development Center Incoming Tipping Inspection Form.
4. Divide each strip of tipping into five parts, keeping Rows A and B designations for the rows of perforations on each of the five parts.
5. Determine the average permeability of each row of perforations for each strip of tipping as follows:
 - a. Determine the permeability in CORESTA units of the lines of Row A perforations on each of the five parts.
 - b. Average the five CORESTA readings which will yield the Row A average for a given strip of tipping.
 - c. Repeat steps a. and b. on the lines of Row B perforations.
 - d. Determine the average of the averages of Row A and Row B.
 - e. If the average CORESTA value for either Row A or B exceeds the limits of $\pm 10\%$ from target value, the bobbin will be rejected.
 - f. Record the appropriate information on the Incoming Inspection Form.

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INCOMING MATERIALS INSPECTION - PERFORATED TIPPING PERMEABILITY,
LOCATION OF PERFORATIONS, AND TIPPING WIDTH

TESTING PROCEDURE: (Continued)

6. Inspect the strips for visual defects such as smeared print and/or logo, etc., while the other analysis are being conducted. Report any questionable fault.

CORRECTIVE ACTION:

The Materials Supervisor will determine whether the material in question is to be used, discarded, or returned to the supplier.

0438M
(5/1/89)
Attachment

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INCOMING TIPPING INSPECTION

| | |
|---------------------|--------------------------------|
| DESCRIPTION: | ADDITIONAL INFORMATION: |
|---------------------|--------------------------------|

| TARGET LOCATION OF PERFS. FROM MOUTH END (mm) | CORESTA VALUES - TARGET | Min. | Max. |
|--|----------------------------|------|------|
| 1 | 10 | 10 | 10 |
| 2 | 10 | 10 | 10 |
| 3 | 10 | 10 | 10 |
| 4 | 10 | 10 | 10 |
| 5 | 10 | 10 | 10 |
| 6 | 10 | 10 | 10 |
| 7 | 10 | 10 | 10 |
| 8 | 10 | 10 | 10 |
| 9 | 10 | 10 | 10 |
| 10 | 10 | 10 | 10 |
| 11 | 10 | 10 | 10 |
| 12 | 10 | 10 | 10 |
| 13 | 10 | 10 | 10 |
| 14 | 10 | 10 | 10 |
| 15 | 10 | 10 | 10 |
| 16 | 10 | 10 | 10 |
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| 87 | 10 | 10 | 10 |
| 88 | 10 | 10 | 10 |
| 89 | 10 | 10 | 10 |
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| 91 | 10 | 10 | 10 |
| 92 | 10 | 10 | 10 |
| 93 | 10 | 10 | 10 |
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| 96 | 10 | 10 | 10 |
| 97 | 10 | 10 | 10 |
| 98 | 10 | 10 | 10 |
| 99 | 10 | 10 | 10 |
| 100 | 10 | 10 | 10 |

ACTUAL LOCATION OF PERFORATIONS
FROM MOUTH END (mm)

[illegible]

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BROWN & WILLIAMSON TOBACCO CORPORATIONSTANDARD INSPECTION PROCEDURE

TITLE: INCOMING MATERIALS INSPECTION - NON-PERFORATED TIPPING
WIDTH AND VISUAL INSPECTION

DEPARTMENT: QUALITY ASSURANCE LABORATORY

BRANCH: DEVELOPMENT CENTER

SAMPLING PROCEDURE:

1. Separate the bobbins of tipping received in a shipment by "set" numbers.
2. Randomly select one bobbin from each "set" of bobbins.
3. Remove the first 10 feet from each bobbin selected and discard this material. Then, remove the next 10 feet from each bobbin.
4. Place each 10-foot strip in a jar along with a label containing the identifying information outlined in Item 6.
5. Place an additional label on each bobbin sampled.
6. The label information required will be coded as follows:

| <u>ITEM</u> | <u>CODE</u> |
|--------------------------|-------------|
| Tipping (Non-Perforated) | T-NP |
| Supplier { Golden Belt | G |
| Hermetite | H |
| Ecusta | E |
| Archer | A |
| Width (mm) | 60 |
| Month Sampled | 12 |
| Day Sampled | 07 |
| Bobbin Number | 006 |

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INCOMING MATERIALS INSPECTION - NON-PERFORATED TIPPING WIDTH
AND VISUAL INSPECTION

TESTING PROCEDURE:

1. Measure the width of each 10-foot strip. The allowable limits are $\pm 1.0\text{mm}$.
2. If a strip exceeds the acceptable limits, measure a second strip from another bobbin taken from the same "set" of bobbins.
3. If the second sample exceeds the limits, notify the Materials Supervisor for disposition of the tipping.
4. Visually inspect each strip of tipping for printing and/or other visual defects.
5. If a defect is noted on a particular strip, obtain a second sample from the same bobbin and visually inspect.
6. If the same defect is noted on the second sample, notify the Materials Supervisor and in addition obtain a sample from another bobbin from the same "set".
7. If the same defect is found on the sample strip from a second bobbin from the same "set", the entire "set" will be deemed faulty, and the Materials Supervisor will be notified.

CORRECTIVE ACTION:

The Materials Supervisor will determine if the material in question is to be used, discarded, or returned to the supplier.

0455M
(5/1/89)
Attachment

620011481

A3

BROWN & WILLIAMSON TOBACCO CORPORATIONSTANDARD INSPECTION PROCEDURE

TITLE: INCOMING MATERIALS INSPECTION - CIGARETTE PAPER
PERMEABILITY AND BURN ADDITIVE

DEPARTMENT: QUALITY ASSURANCE LABORATORY
R&D SPECIAL SERVICES LABORATORY

BRANCH: DEVELOPMENT CENTER

SAMPLING PROCEDURE:

1. When sampling a pallet (216 bobbins) and/or a lesser quantity of cigarette paper to be used to make a sample where permeability is not a critical parameter, first determine how many "sets" of bobbins are present.
2. Randomly select a bobbin representing each set.
3. When a quantity of cigarette paper is received which will be used for making a sample where permeability is the critical parameter, sample every bobbin.
4. Remove five (5) six-foot strips of each bobbin mentioned in Items 1, 2, and 3.
5. Place the five (5) strips in a clean jar along with a coded label which identifies the bobbin from which they came.
6. Place a second coded label on the outside of each sampled bobbin and, in addition, record the bobbin number and the date it was sampled on the core of each bobbin.
7. Select one bobbin from each "set" represented on a shipment and remove one six-foot strip from it. Place each strip in a jar with a label containing the appropriate information. Label the sampled bobbin accordingly.
8. Deliver the samples mentioned in Item 7 to the Special Services Laboratory in the Technical Center for burn additive analyses. Send an Incoming Materials Inspected Form along with the samples.

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INCOMING MATERIALS INSPECTION -
CIGARETTE PAPER PERMEABILITY AND BURN ADDITIVE

SAMPLING PROCEDURE: (Continued)

9. The following is an example of the information and its code which will be supplied on the labels which accompany all of the samples:

| <u>ITEM</u> | | <u>CODE</u> |
|-----------------|---|------------------|
| Cigarette Paper | | C |
| Supplier | { Ecusta Schweitzer Wattens DuMaudit | E S W D |
| Paper Grade | | 556 |
| Date Sampled | | 27th |
| Month Sampled | | 05 |
| Bobbin Number | | 001 |

TESTING PROCEDURE:

1. Development Center's Quality Assurance Laboratory personnel will perform CORESTA permeability determinations on each of the five (5) 6-foot strip samples.
2. An average permeability reading will be determined for each bobbin sampled.
3. The averages along with pertinent identifying information from each bobbin will be recorded on an Incoming Materials Inspection Form.
4. Technical Center's Special Services Laboratory personnel will conduct burn additive analysis on the samples sent to them and report their findings to the Materials Supervisor in Development Center.
5. The Materials Supervisor will determine the acceptability of the sampled cigarette paper.
6. The acceptable range of permeability is $\pm 10\%$ from target, while the acceptable range for burn additive is $\pm 20\%$ from target.

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INCOMING MATERIALS INSPECTION -CIGARETTE PAPER PERMEABILITY AND BURN ADDITIVECORRECTIVE ACTION:

Material deemed unacceptable by the Materials Supervisor will be discarded unless he is otherwise notified.

0438M
(5/1/89)
Attachment

620011484



A3

DEVELOPMENT CENTERINCOMING CIGARETTE PAPER/PLUG WRAP INSPECTED

TO: _____ DATE: _____

CC: _____

SUPPLIER: _____ DESCRIPTION: _____

ADDITIONAL INFORMATION: _____ MONTH SAMPLED: _____

GRADE OR TYPE: _____ DATE SAMPLED: _____

EXPECTED CORESTA VALUE TARGET: _____ MIN. _____ MAX. _____

| BOBBIN NO. | PERM. | BURN ADD. | BOBBIN NO. | PERM. | BURN ADD. |
|------------|-------|-----------|------------|-------|-----------|
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0438M
(5/1/89)
Attachment

620011485

A4

BROWN & WILLIAMSON TOBACCO CORPORATIONSTANDARD INSPECTION PROCEDURE

TITLE: INCOMING MATERIALS INSPECTION - POROUS PLUG WRAP
PERMEABILITY

DEPARTMENT: QUALITY ASSURANCE LABORATORY

BRANCH: DEVELOPMENT CENTER

SAMPLING PROCEDURE:

1. When sampling a pallet (216 bobbins) and/or a lesser quantity of porous plug wrap to be used to make sample where plug wrap permeability is not a critical parameter, first determine how many "sets" of bobbins are present.
2. Randomly select a bobbin representing each set.
3. When a quantity of porous plug wrap is received which will be used for making a sample where plug wrap permeability is the critical parameter, sample every bobbin.
4. Remove five (5) six-foot strips from each bobbin mentioned in Items 1, 2, and 3.
5. Place each five (5) strip sample in a clean jar along with a coded label identifying the bobbin from which the sample came.
6. Place a second coded label on the outside of each sampled bobbin, and in addition, record the bobbin number and the date it was sampled on the core of the bobbin.
7. The following is a sample of how the labels will be coded:

| <u>ITEM</u> | <u>CODE</u> |
|----------------|----------------------------|
| Plug Wrap | P |
| Supplier | { Ecusta E Schweitzer S |
| Plug Wrap Type | 33 ml |
| Month Sampled | 5 |
| Day Sampled | 20 |
| Bobbin Number | 001 |

620011486

INCOMING MATERIALS INSPECTION - POROUS PLUG WRAP PERMEABILITYTESTING PROCEDURE:

1. Deliver the jars containing the samples to the Development Center Quality Assurance Laboratory where one CORESTA permeability reading will be made on each of the five strips.
2. An average permeability reading will be calculated for each bobbin sampled, with the averages and bobbin numbers being recorded on an Incoming Materials Inspection Form. A sample form is attached.
3. Deliver the completed form to the Material Supervisor who will use $\pm 10\%$ from target as the limits of acceptability.
4. An entire set of bobbins will be deemed unacceptable if the sample bobbin representing it exceeds the acceptable limits.
5. In cases where every bobbin in a shipment has been tested, only those bobbins which exceed the limits will be unacceptable for use.

CORRECTIVE ACTION:

The Materials Supervisor will dispose of the rejected bobbins unless he is notified to take another course of action.

0455M
(5/1/89)
Attachment

620011487



DEVELOPMENT CENTER

A4

INCOMING CIGARETTE PAPER/PLUG WRAP INSPECTED

TO: _____ DATE: _____

CC: _____

SUPPLIER: _____ DESCRIPTION: _____

ADDITIONAL INFORMATION: _____ MONTH SAMPLED: _____

GRADE OR TYPE: _____ DATE SAMPLED: _____

EXPECTED CORESTA VALUE TARGET: _____ MIN. _____ MAX. _____

| BOBBIN NO. | PERM. | BURN ADD. | BOBBIN NO. | PERM. | BURN ADD. |
|------------|-------|-----------|------------|-------|-----------|
| | | | | | |
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0438M
(5/1/89)
Attachment

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DATE: MAY 1, 1989

A5



Page 1 of 2

BROWN & WILLIAMSON TOBACCO CORPORATION

STANDARD INSPECTION PROCEDURE

TITLE: INCOMING MATERIALS INSPECTION - FILTER TOW

DEPARTMENT: DEVELOPMENT CENTER - FABRICATION

BRANCH: DEVELOPMENT CENTER

SAMPLING & TESTING PROCEDURE:

1. When a new bale of filter tow is required for sample filter rod manufacture do the following:
 - a. After the outer wrappings have been removed, check the tow identification card's data to see that it is the same as that listed on the sticker on the outer wrap.
 - b. Check the upper portion of the bale for proper compaction. Tow that is too loosely or too tightly compacted can create withdrawal problems when removed from the bale.
 - c. Check for splices in the bale. No more than one should be found in any production bale.
 - d. Check the tow band on the top of the bale to see that it is in proper alignment for good withdrawal.
 - e. Thread the filter tow into the filter rod maker. Make the necessary adjustments to the rod maker to get the rod maker running properly. Visually inspect the tow as it is being processed.
 - f. Check the tow for visual defects, such as long-term splits or holes, hard edges, excessive band width, folded band, and too high or low crimp level.
2. If any of these defects are noted and if they are detrimentally affecting the quality of the rods being produced, stop the rod maker and remove a small portion of the tow from the bale.
3. Rethread the maker. If the problem persists, remove the remainder of the bale from the rod maker.

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INCOMING MATERIALS INSPECTION - FILTER TOWCORRECTIVE ACTION:

1. The remainder of the bale will be set aside along with its identifying bale card and a note describing its defect.
2. The Materials Supervisor and a filter tow technical representative will determine the disposition of the rejected material.

0438M
(5/1/89)

620011490

BROWN & WILLIAMSON TOBACCO CORPORATIONSTANDARD INSPECTION PROCEDURE

TITLE: INCOMING MATERIALS INSPECTION - TIPPING ADHESIVE
DEPARTMENT: SPECIAL SERVICES LABORATORY
BRANCH: DEVELOPMENT CENTER

SAMPLING PROCEDURE:

Development Center receives its supply of tipping adhesive in lots of 5 gallon buckets. When a supply is received, one random bucket will be selected and sampled. One quart of adhesive will be taken from the bucket and sent to Special Services Laboratory for analysis. Before the 5 gallon bucket is sampled, the adhesive within should be thoroughly mixed.

TESTING PROCEDURE:

1. The laboratory will test the sample for:
 - a. Viscosity
 - b. Percent Solids
 - c. pH
2. A subjective evaluation of the aroma and color of the sample will also be made.

CORRECTIVE ACTION:

3. Results will be reported to the Materials Supervisor who will compare results against supplier specifications and determine course of action if warranted.

0438M
(5/1/89)

620011491



A7

BROWN & WILLIAMSON TOBACCO CORPORATIONSTANDARD INSPECTION PROCEDURE

TITLE: INCOMING MATERIALS INSPECTION - CIGARETTE PACKAGING MATERIALS

DEPARTMENT: DEVELOPMENT CENTER - FABRICATION

BRANCH: DEVELOPMENT CENTER

SAMPLING PROCEDURE:

1. The various packaging materials will be visually inspected for physical defects prior to their being used to package a sample.
2. The procedure for inspecting these materials is as follows:

a. Cut "Soft Cup" Labels

Remove a random label from a bundle (500 labels) and check to insure that the printing is correct, clear, and properly positioned. Insure that the specified unvarnished areas are present and in proper position. Check the labels for excessive "curl".

b. Roll "Soft Cup" Labels

Inspect the first five or six labels on the roll for the same physical characteristics mentioned under Item a. Also, inspect the roll itself for proper roll formation, core damage, etc.

c. Flip Open Box Label Blanks

Remove a random blank from a stack (750 label blanks) and inspect for correct, clear, properly positioned printing. Check to determine if the unvarnished areas are present and in proper position. Check the "score" lines to insure that the blank will fold correctly.

d. Roll Closures

Inspect for proper roll formation. Check the first six closures on the roll for clear and correct printing.

620011492

INCOMING MATERIALS INSPECTION - CIGARETTE PACKAGING MATERIALSSAMPLING PROCEDURE: (Continued)e. Tear Tape

Check each roll for any obvious defects such as "strand entanglement" which would cause quality and machinery problems.

f. Foil

Inspect each roll for proper roll formation. Check several feet of foil for wrinkles, foil delamination from paper backing, etc.

g. Film

Inspect each roll for proper roll formation.

h. Cartons

Remove a random carton from a stack (500 cartons). If printed and/or numbered, make certain its printing and numbers are correct and clear. Inspect the carton for proper "scoring" and varnish-free areas.

i. Shipping Cases

Remove one random case from the number available and check print (if present), size, and general physical quality.

CORRECTIVE ACTION:

1. If a fault is found in the labels mentioned in Items a, b, or c, pull five random labels from the bundle or stack the labels came from and repeat the inspection. If the fault is found again, set aside the questionable labels and notify the Materials Supervisor.
2. If the quality of a roll of tear tape, closures, foil, or film is suspect of causing package quality and/or machinery problems, notify the Materials Supervisor before using it.
3. If the carton or shipping case is defective or imperfect, pull another sample for inspection. If the second sample shows the same problem, set aside and notify the Materials Supervisor.

0455M
(5/1/89)
Attachment

620011493

BROWN & WILLIAMSON TOBACCO CORPORATIONSTANDARD INSPECTION PROCEDURE

TITLE: INCOMING MATERIALS INSPECTION - PLASTICIZER

DEPARTMENT: SPECIAL SERVICES LABORATORY

BRANCH: DEVELOPMENT CENTER
TECHNICAL CENTERSAMPLING PROCEDURE:

1. When a new 55-gallon drum of plasticizer is received in Development Center, prior to its use in sample manufacture, remove a one-pint sample for testing.
2. Deliver the sample along with a completed Chemical Testing Request Sheet to the Special Services Laboratory in the Technical Center.

TESTING PROCEDURE:

Special Services will routinely conduct the following analyses and report their results on a Casing and Flavoring Analysis Request Form.

- a. Aroma
- b. Appearance
- c. Specific Gravity 20C°
- d. Reflective Index 20C°
- e. Chromatographic Analysis

CORRECTIVE ACTION:

The Materials Supervisor will be notified if the sample is out of specification in any of the test categories and will determine, based on those results, if the plasticizer is usable or should be returned to the supplier.

0455M
(5/1/89)
Attachment

620011494

RE 2586 (12-74)

BROWN & WILLIAMSON TOBACCO CORPORATION
CHEMICAL TESTING REQUEST SHEET

Type of Test _____
Type of Sample _____
Date of Request _____
Project Number _____
Number of Samples _____
Individual Receiving Results _____
Preferred Testing Date _____
Non-Tobacco Weight (If Applicable) _____
Telephone Number _____
Special Instructions: _____

JRM/7-1-70

620011495

BROWN & WILLIAMSON TOBACCO CORPORATION

ACCEPT ☒

A8

CASING & FLAVORING ANALYSIS REQUEST

REJECT ☐

Material Cornic (TEC) Number of Samples 1 Lot Number 7-1-87
 Submitter R. Lockard Phone _____
 Project Number _____ Priority _____
 Special Instructions _____
 _____ ☐ Return Unused Sample
 Date of Manufacture _____ Date Submitted 7-1-87
 Date of Release 7-7-87 Supervisor _____

Analyses Requested -- Please check appropriate boxes.

I. Sensory

☐ Flavor _____ Analyst _____
☒ Aroma OK _____ Analyst _____
☒ Appearance OK _____ Analyst JH

II. Physical Properties

☒ Specific Gravity ^{20°C} 1.1417 ☐ Specific Rotation _____ °
☒ Refractive Index 20°C 1.4412 ☐ Flash Point _____ °C
☐ Melting Point _____ ☐ Viscosity _____ cps
☐ Other _____

Analyst JA

III. Chemical Analysis

☐ Ash _____ ☐ Starches & Gums _____
☐ Butterfat _____ Sugars _____
☐ Glycyrrhizin _____ ☐ Reducing _____
☐ Menthol _____ ☐ Total _____
☐ Moisture _____ ☐ Dextrose Equivalent _____
☐ Other _____

IV. ☒ Chromatographic Analysis

Conforms to Standard _____
 Does not conform to Standard _____
 Comments _____

Analyst 620011496



SECTION B

INCOMING MATERIALS INSPECTION - TOBACCO

- B1 - MACON PREPARED BLENDS OF CUT TOBACCO
- B2 - RECLAIMED SHORTS FROM MACON
- B3 - CASINGS & FLAVORINGS
- B4 - RECONSTITUTED TOBACCO
- B5 - W.T.S.
- B6 - EXPANDED TOBACCO

620011497

DATE: JUNE 1, 1989

B1



Page 1 of 1

BROWN & WILLIAMSON TOBACCO CORPORATION

STANDARD INSPECTION PROCEDURE

TITLE: INCOMING TOBACCO MATERIAL INSPECTION - MACON PREPARED BLENDS
OF CUT TOBACCO

DEPARTMENT: DEVELOPMENT CENTER - PRIMARY AND QUALITY ASSURANCE,
TECHNICAL SERVICES LABORATORY

BRANCH: DEVELOPMENT CENTER

SAMPLING PROCEDURE:

1. Macon blends will be sampled for the following determinations:
 - (a) Moisture Content
 - (b) Humectants
 - (c) Menthol (if applicable)
2. Three 1/2 Pint jar samples will be randomly collected from each container for moisture analysis and delivered to Development Center's Quality Assurance Laboratory. There is not a set target moisture content which applies to every blend. Each blend will have its own individual target depending upon what final in-cigarette moisture content is desired. Generally, a container of Macon blend is considered acceptable if the three moisture samples average target $\pm 1.0\%$. But as a safeguard, if the average is as much as 1.0% from target, the appropriate product developer should be notified.
3. A total of five 1/2 pint jar samples will be collected across an operation for humectant analysis. These samples along with a Chemical Analysis Request Form in triplicate will be delivered to the Technical Services Laboratory. The acceptable ranges for GRELANTER (Propylene Glycol) and CELANDO (Glycerin) are determined by comparing the results against historical data contained in the P.A.C. Book.
4. If the blend is mentholated, three vial samples will be collected from each container for menthol analysis. A container is acceptable if its three samples average target to target $+ 0.070\%$.

0529M
(6/1/89)

620011498

DATE: JUNE 1, 1989



Page 1 of 1

B2

BROWN & WILLIAMSON TOBACCO CORPORATION

STANDARD INSPECTION PROCEDURE

TITLE: INCOMING TOBACCO MATERIAL INSPECTION - RECLAIMED SHORTS

DEPARTMENT: DEVELOPMENT CENTER - PRIMARY AND QUALITY ASSURANCE,
TECHNICAL SERVICES LABORATORY

BRANCH: DEVELOPMENT CENTER

SAMPLING PROCEDURE:

1. Collect three 1/2 pint jar samples from each container of shorts for moisture analysis and send to Development Center's Quality Assurance Laboratory. The target of the average of the three samples is 13.0%. If the average moisture content is above or below target, adjustments will be made at the flavor box to insure that the correct percentage of shorts is in a particular blend.
2. If the shorts are mentholated, 2 ounce vials of material will be collected from each box and along with a Chemical Analysis Request Form sent to Technical Center for analysis. This information is required so that if necessary, adjustments can be made at the flavor box to insure that a particular blend contains the specified amount of menthol.

0529M
(6/1/89)

620011499

DATE: JUNE 1, 1989

B3



Page 1 of 1

BROWN & WILLIAMSON TOBACCO CORPORATION

STANDARD INSPECTION PROCEDURE

TITLE: INCOMING TOBACCO MATERIAL INSPECTION - CASING AND FLAVORINGS
DEPARTMENT: DEVELOPMENT CENTER - PRIMARY AND
TECHNICAL CENTER LABORATORIES
BRANCH: DEVELOPMENT CENTER

SAMPLING PROCEDURE:

1. All casing and flavoring ingredients, both liquids and solids, will be analyzed by Technical Center before being used in primary processing. There is one exception, GOLIC (denatured alcohol).
2. A 2-ounce vial of each material from each container will be collected and along with a Chemical Analyses Request Form sent to the Distribution Center. The vials are tinted to prevent damage to those materials which are light sensitive.
3. Technical Center has the standards for each material and will notify Development center personnel should one or more of the materials fail to match its set of standards.
4. Rejected material will be set aside and disposed of.

0529M
(6/1/89)

620011500



B4

BROWN & WILLIAMSON TOBACCO CORPORATIONSTANDARD INSPECTION PROCEDURE

TITLE: INCOMING TOBACCO MATERIAL INSPECTION - RECONSTITUTED TOBACCO
DEPARTMENT: DEVELOPMENT CENTER - PRIMARY AND TECHNICAL CENTER LABORATORIES
BRANCH: DEVELOPMENT CENTER

SAMPLING PROCEDURE:

1. From each container of reconstituted tobacco, collect a 1 pint jar sample. Since the material has been found to be very uniform within a container, the sample can be taken from the top.
2. Submit the sample, properly identified, along with the appropriate analyses request form to the Distribution Center in Technical Center.
3. The following analyses will be conducted:

| <u>METHOD</u> | <u>REPLICATES</u> | <u>ANALYSES</u> |
|-----------------|-------------------|---|
| PMNT | 4 | Propylene Glycol (% As Is) Glycerin (% As Is) |
| ALKI | 2 | Total Alkaloids (% DWB) Reducing Sugars (% DWB) Total Sugars (% DWB) Nitrates (% DWB) Chlorides (% DWB) Phosphates (% DWB) |
| NH3 (CPCL Only) | 2 | Ammonia (% As Is) |
| pH (CPCL Only) | 2 | Tobacco pH |

4. If a container, based on these analyses, does not appear to be typical of that product, it will not be used in Development Center production.
5. Any material three months old or older will not be used.

0529M
(6/1/89)

620011501

DATE: JUNE 1, 1989

Page 1 of 1

B5



BROWN & WILLIAMSON TOBACCO CORPORATION

STANDARD INSPECTION PROCEDURE

TITLE: INCOMING TOBACCO MATERIAL INSPECTION - WTS
DEPARTMENT: DEVELOPMENT CENTER - PRIMARY AND QUALITY ASSURANCE
BRANCH: DEVELOPMENT CENTER

SAMPLING PROCEDURE:

1. Each container of WTS received from Macon will be sampled for the following determinations:
 - (1) Moisture Content
 - (2) Fill Value
 - (3) Particle Size
2. Three 1/2 pint jar samples will be randomly collected for moisture analysis and sent to Development Center's Quality Assurance Laboratory. The target for the average of the three samples is 13.0%. If the average is either above or below target, appropriate adjustments will be made at the flavor box to insure that each blend contains the correct percentage of WTS. Excessive moisture will cause expanded tobacco to become "lumpy" and/or padding of the material will be cause for rejection.
3. A 5 lb. bag sample will be collected and sent to the Development Center's Quality Assurance Laboratory for fill value and particle size determinations. The methods used to determine fill value and particle size are attached to Standard Inspection Procedure For Expanded Tobacco. Results will be plotted on graphs and trends will be reported to appropriate personnel.
4. The maximum storage time for WTS in Development Center is three months. Any material older than this will be discarded.

0529M
(6/1/89)

620011502



B6

BROWN & WILLIAMSON TOBACCO CORPORATIONSTANDARD INSPECTION PROCEDURE

TITLE: INCOMING TOBACCO MATERIAL INSPECTION - EXPANDED TOBACCO
DEPARTMENT: DEVELOPMENT CENTER - PRIMARY AND QUALITY ASSURANCE,
TECHNICAL SERVICES LABORATORY
BRANCH: DEVELOPMENT CENTER

SAMPLING PROCEDURE:

1. Each container of expanded tobacco received from Macon will be sampled for the following determinations:
 - (1) Moisture Content
 - (2) Humectants (CELANDO)
 - (3) Fill Value
 - (4) Particle Size
2. Three 1/2 pint jar samples will be randomly collected for moisture analysis. These will be sent to Development Center's Quality Assurance Laboratory. The target moisture content for the average of the three samples is 13.0%. If the actual average is either above or below target, adjustments in the amount of expanded tobacco and/or water added to the cut tobacco blend will be made at the flavor box. This is to insure that the correct percentage of expanded tobacco is in a particular blend. Excessive moisture will cause expanded tobacco to become "lumpy" and/or matted and will be a reason for rejection.
3. Five 1/2 pint jar samples will be randomly collected for humectant analysis. These will be delivered to the Technical Services Laboratory along with a Chemical Analysis Request Form in triplicate. If the analyses show that the average of the five samples falls within the range of 1.70% - 2.30%, the container of expanded tobacco is deemed acceptable. Normal rejection rate is about 10%, should it increase significantly, e.g. 20%, the appropriate Development Center personnel will be notified.

620011503

STANDARD INSPECTION PROCEDUREINCOMING TOBACCO MATERIAL INSPECTION - EXPANDED TOBACCOSAMPLING PROCEDURE: (Continued)

4. A bag sample of about 5 lbs. of expanded tobacco will be collected and sent to Development Center's Quality Assurance Laboratory. This sample will be used to conduct fill value and particle size determinations. Fill Value will be determined using the Borgwaldt Fill Value Method which is outlined on Technical Center's Standard Method of Analysis No. SM-130. Particle size will be determined using a Rotap Shaker. The method is contained in Technical Center's Standard Method of Analysis No. SM-135.

Results will be plotted on graphs, and trends that develop will be reported to appropriate Development Center personnel.

5. Copies of the fill value and particle size methods are attached as is a copy of the Chemical Analysis Request Form.
6. The maximum storage time for expanded tobacco in Development Center is three months. Any material kept longer will be discarded.

0529M
(6/1/89)
Attachments

620011504

BROWN & WILLIAMSON TOBACCO CORPORATION

Research Department

Standard Method of Analysis

Method No.: SM-130

Date Issued: November 23, 1982

BORGWALDT FILL VALUE

Mr. C. B. Jenkins

Mr. T. D. Marquess

Distribution

1. Dr. J. H. Lauterbach
2. Mr. J. F. Nall
3. Mr. C. B. Jenkins
4. Mr. T. D. Marquess
5. Mr. M. S. Frank
6. Library (2)
7. Greens

620011505

B6

BROWN & WILLIAMSON TOBACCO CORPORATION

Research Department

Standard Method of Analysis

Method No.: SM-130 Date Issued: November 23, 1982

Method Class:

Title: Borgwaldt Fill ValueAuthors: Mr. C. B. Jenkins C. B. Jenkins Jr.Mr. T. D. Marquess T. D. Marquess

Summary: A known weight of tobacco is compressed by a standard weight in a specific cylinder. The compressed volume is determined and fill value reported as cc/g.

Sample Size: A 10 g - 20 g sample is required.

Range and/or Sensitivity: This test may be used on all cut tobaccos.

Precision: The pooled percent relative standard deviation (% RSD) of this method is estimated to be 1.20%. This was generated by averaging the % RSD from three replicates from each of 25 samples. This estimate represents both the within and between-day method variation.

Analysis Time - Setup: (man-hours) - 0.5

- Take-down: (man-hours) - 0.2

- Variable: (man-hours/sample) - 0.2

Approved for issue: J. H. LichtenhanDate: November 23, 1982J. F. HallDate: 12/9/82

620011506

1. Principles of the Method

A defined weight of cut tobacco is compressed in a cylinder under a 3 kg (free-fall) load for a duration of 30 seconds. The sample weight and the height of the compressed tobacco column are used to calculate the filling power of the sample expressed as cc/g.

Results are reported at testing moisture (uncorrected) and at a calculated moisture content of 14% (corrected).

2. Range and Sample Size

Sample size depends on both the tobacco type and its moisture. Expanded tobaccos normally require about 10 g. Wet nonexpanded samples could require more than 20 g. The compressed sample must read at least 20.00 mm on the display to be reliable.

3. Safety Precautions

Normal safety precautions are employed.

4. Interferences and Correlative Measurements

No chemical interferences have been reported for this method. Fill value results depend on sample moisture.¹⁻⁴ Particle size will also influence results.⁵ Samples should be divided to test size on a riffle sample splitter.

5. Precision:

The pooled percent relative standard deviation (% RSD) of this method is estimated to be 1.20%. This was generated by averaging the % RSD from three replicates from each of 25 samples. This estimate represents both the within and between-day method variation.

6. Apparatus

- 6.1 Borgwaldt Digital Densimeter DD-30.
- 6.2 Balance, Top loader, 1000 g capacity (accurate to ± 0.1 g).
- 6.3 Plexiglass shield for balance.
- 6.4 Weighing pan capable of holding 20 g of cut tobacco.
- 6.5 Wide-mouth funnel.
- 6.6 Beaker brush.
- 6.7 Riffle sampler, supplier, Fischer Scientific #04-942A.

620011507

7. Reagents or Standards

No special reagents or standards are required for this determination.

8. Standardization or Calibration

Calibration of the Densimeter consists of checking that the digital display reading corresponds to the position of the piston resting at a predetermined height.

- 8.1 Set the directional switch RICHTUNG, located on the front plate of the digital display unit, to the left.
- 8.2 Turn the preselection counter on the display unit to "+20.000".
- 8.3 Set the CIGARETTES/TOBACCO switch to TOBACCO and the timer to 3 (30 seconds).
- 8.4 Place the fitted 1 kg weight on top of the piston.
- 8.5 Place the gray circular spacer (2.0 cm in height) into the container for cut tobacco. Place this container with its lower key set on the guide bar in the center of the base plate and slide against the stop.
- 8.6 Press the START button. When the measuring head reaches the lower resting position, press the set key "A" located on front of the display unit. The display will show a value of 20.000.
- 8.7 When the period (30 seconds) set on the timer has elapsed, the measuring head will return to its upper position and the display should remain at 20.000 ± 0.008 .
- 8.8 Remove the spacer from the cut tobacco container.
- 8.9 Repeat calibration steps 8.5-8.8 after every ten samples (see Operational Note 12.1).

9. Procedure

- 9.1 Obtain a representative sample by "quartering or splitting," until the sample is ± 5 g of the desired sample weight (see Operational Note 12.2).
- 9.2 Accurately weigh the tobacco sample to 0.1 g and record the weight. Normally, a 20 g sample is used for blended tobaccos (see Operational Note 12.2).

620011508

- 9.3 Remove and fill the cylinder with the tobacco sample using a wide-mouth funnel. Avoid excessive handling of the tobacco. Gently level the tobacco in the cylinder. DO NOT PRESS THE SAMPLE DOWN INTO THE CYLINDER MORE THAN NECESSARY. Refit the cylinder onto the instrument with the 1 kg weight attached.
- 9.4 Press the START button on the front of the Borgvaldt instrument to begin the test cycle.
- 9.5 Record the reading on the display unit after the test interval of 30 seconds has elapsed and the piston has lifted.
- 9.6 Remove the cylinder and transfer the tobacco to an appropriate container, seal, and submit for moisture analysis. Brush out any remaining particles. Each succeeding sample can be tested by repeating steps 9.1-9.6.
- 9.7 When finished, turn the unit off and remove the 1 kg fitted weight from the top of the piston.

10. Calculations

Uncorrected Fill Value (UFV) is calculated as follows:

$$UFV (cc/g) = \left(\pi \frac{D^2}{4} \frac{H}{10} \right) \div W$$

H = The sample height displayed on the unit (mm).

D = The inside diameter of the cylinder (5.948 cm).

W = The tobacco sample weight (g).

This formula can be condensed to the following:

$$UFV (cc/g) = \frac{27.786 \frac{H}{10}}{W} = 2.7786 \frac{H}{W}$$

See Operational Note 12.3.

A Corrected Fill Value (CFV) may be calculated for some tobaccos (see Operational Note 12.4).

620011509

11. Quality Control Procedures

A QC procedure is currently being developed for this test. This procedure will be implemented when approved.

12. Operational Notes

- 12.1 If a variation greater than 20.000 ± 0.010 occurs, check to be sure that the measuring head, spacer, and cylinder are clean and tobacco free. Also check to be sure that the transducer is properly positioned.
- 12.2 Different tobaccos may require different sample weights. Expanded tobaccos normally require 10 g samples due to tobacco expansion. Wet samples could require more than 20 g. It is necessary to obtain a reading on the display of at least 20.000 mm. in height from a sample. Therefore, the weight may have to be adjusted accordingly.
- 12.3 Because moisture affects fill value, present practice is to precondition tobacco at 75°F and 60% RH prior to fill value measurements. The fill value test is also carried out at 75°F and 60% RH to minimize changes in sample moisture during testing. Uncorrected results are reported at conditioned tobacco moistures. Tobacco samples conditioned at the same relative humidity and temperature may have different moisture contents due to the different sorptive properties of various tobaccos.
- 12.4 Correction factors have been reported for some tobaccos and blends based on the relation between fill value and moisture. These factors allow fill value results to be expressed at any desired sample moisture. Current correction factors are given in the Appendix. These factors will be updated as information becomes available.

620011510

13. References

1. R. H. Honeycutt and O. C. Lin, "Fill Value-Moisture Relationships for Different Blend Components," MEM-B149-81, December 2, 1981.
2. O. C. Lin and R. H. Honeycutt, "Predicting Fill Value-Moisture Relationships for Multicomponent Blends," MEM-B016-82, February 18, 1982.
3. D. L. Gordon, "Moisture Correction of Borgwaldt Fill Value," Interoffice Correspondence, March, 26, 1982.
4. R. H. Honeycutt and O. C. Lin, "Fill Value-Moisture Relationships - Additional Data," MEM-B-104-82, August 2, 1982.
5. C. B. Jenkins and J. T. Pincus, "Comparison of Liquid-Nitrogen Flotation, Acetone Specific-Volume, and Fill-Value Methods To Determine The Quality of Expanded Tobaccos and of Blends Containing Expanded Tobaccos," MEM-B058-82, May 24, 1982.

CBJ/bfw/00340

620011511

APPENDIX

BORGWALDT FILL VALUE MOISTURE CORRECTION

Application: In comparing either blends or blend components, moisture differences must be removed as a covariable. The factors listed below apply to moisture ranges from 8% to 18% for components and 12.5% to 15% for blends. If moisture results are outside these ranges, condition the tobacco so that it falls within these ranges.

Equation: After measuring fill value and moisture content on the same sample, calculate "corrected" fill value with the following equation:

$$CFV = UFV + B (T-M) + C (T^2 - M^2)$$

when CFV = corrected fill value (cc/g)

UFV = "as-is" fill value (cc/g)

M = moisture of sample (%)

T = target moisture (14%)

B and C = moisture correction factors

Correction Factors B and C: The correction factors, B's and C's, listed below are used in the above equation.

| <u>Material</u> | <u>B</u> | <u>C</u> |
|--|----------|----------|
| WTS | -0.99 | 0.02 |
| LNB-WTS | -0.92 | 0.02 |
| G-13 | -1.28 | 0.02 |
| G-13-C | -1.10 | 0.02 |
| PJS (30 CPI)* | -1.11 | 0.03 |
| Lamina/PJS | -0.66 | 0.01 |
| MET 3 | -0.66 | 0.007 |
| <u>Blends</u> | <u>B</u> | <u>C</u> |
| Domestic, MOORGATE and Export W/G-13 or G-13-C | -0.76 | 0.01 |

*CPI is cuts per inch.

Note: The correction factors apply to finished product.

620011512

BROWN & WILLIAMSON TOBACCO CORPORATION

Research Department

Standard Method of Analysis

Method No.: SM-135

Date Issued: February 28, 1983

TOBACCO PARTICLE SIZE DETERMINATION

T. D. Marquess

Distribution

1. Dr. J. H. Lauterbach
2. Mr. J. F. Nall
3. Mr. T. D. Marquess
4. Mr. M. S. Frank
5. Library (2)
6. Greens

620011513

BROWN & WILLIAMSON TOBACCO CORPORATION

Research Department

Standard Method of Analysis

Method No.: SM-135 Date Issued: February 28, 1983

Method Class:

Title: Tobacco Particle Size Determination

Author: Mr. T. D. Marquess

Summary: A weighed sample of cut tobacco is mechanically shaken and sieved for a preset time length. The amount of tobacco retained on each sieve is expressed as a percentage of the whole sample.

Sample Size: A 20 g - 50 g sample is required.

Range and/or Sensitivity: This test may be used on all cut tobacco.

Precision: The relative standard deviations on accumulative percent obtained from control samples, at the +9 and -14 mesh screen levels, are 4.0 and 6.8%, respectively. These data were collected over a 20 day period.

Analysis Time - Setup: (man-hours) - 0.5

- Take-down: (man-hours) - 0.2

- Variable: (man-hours/sample) - 0.04

Approved for issue:

J. F. Hall
D. H. [unclear]
0

Date:

2/25/83

Date:

2/25/82

620011514

1. Principles of the Method

A defined weight of cut tobacco is mechanically tapped and shaken through preselected sieves for a set period of time. The weight, sieve sizes and analyses time are dependent on the type of tobacco to be analyzed. The weight of the tobacco retained on each sieve is calculated and expressed as a percentage of the total weight of the tobacco sample.

2. Range and Sample Size

Sample size depends on the type of tobacco analyzed.

2.1 Cut Tobacco/WTS - 50 g \pm 10 g.

2.2 Expanded Tobacco - 20 g \pm 5 g.

3. Safety Precautions

Normal safety precautions are employed.

4. Interference and Correlative Measurements

No chemical interferences have been reported for this method. Moisture will affect particle size distribution (PSD) by causing padding (high moisture) or break up (low moisture). The sample should be set out on a conditioning screen under preset standard conditions ($75^{\circ} \pm 2^{\circ}\text{F}$; $60\% \pm 2\% \text{ R.H.}$) for 24 hours or until equilibrium moisture occurs. Samples should be divided to test size on a riffler sample splitter or equivalent equipment. (See Operational Notes - 12.3 and 12.4.)

5. Precision

The relative standard deviations of the method, based upon accumulative percents for +9 and -14 mesh screens, are 4.0 and 6.8%, respectively. These values were calculated using data obtained on 20 days of testing from BUGLER control samples.

6. Apparatus

6.1 ROTAP Testing Sieve Shaker, Model B.

6.2 U.S. Standard Testing Sieves, ASTM E-11 Specification, stainless steel, sizes.

620011515

- 6.2.1 Cut Tobacco/WTS - Tyler Equivalents Nos. 6, 9, 10, 14, 24, and 32 plus lid and pan.
- 6.2.2 Expanded Tobacco - Tyler Equivalents Nos. 6, 8, 10, 14, 20 and 28 plus lid and pan.
- 6.3 Timer, Grey Lab Darkroom, Model 300.
- 6.4 Balance, Top loader, 1000 g capacity (accurate to ± 0.01 g).
- 6.5 Riffler sampler splitter, supplier, Fisher Scientific #04-942A.
- 6.6 Beaker brush.
- 6.7 Weighing container.

7.0 Reagents or Standards

No special reagents or standards are required for this determination.

8.0 Standardization or Calibration

- 8.1 Check balance for level and zero.
- 8.2 Accurately tare all sieves and weighing pan (see Operational Note - 12.2).
- 8.3 Tare out sample weighing container.

9.0 Procedure

- 9.1 Arrange tared sieves in proper stacks, descending in order according to Tyler Equivalent Nos. as follows, and place stack on ROTAP.
 - 9.1.1 Cut Tobacco/WTS - Tyler Equivalent Nos. 6, 9, 10, 14, 24, 32 and pan.
 - 9.1.2 Expanded Tobacco - Tyler Equivalent Nos. 6, 8, 10, 14, 20, 28 and pan.
- 9.2 After taring the container, carefully place the PSD sample into the container and accurately weigh to 0.01 g. Record the weight. Sample weight should be within the following ranges (see Operational Note - 12.4).
 - 9.2.1 Cut Tobacco/WTS - 40 to 60 g range.
 - 9.2.2 Expanded Tobacco - 15 to 25 g range.

620011516

- 9.3 Empty the sample from the weighing container into the top of the sieve stack.
- 9.4 Set the timer as follows, turn on ROTAP and allow the instrument to run for the proper time interval.
 - 9.4.1 Cut Tobacco/WTS - 45 seconds.
 - 9.4.2 Expanded Tobacco - 4 minutes.
- 9.5 Remove the stack and individually weigh and record the weight from each sieve and the bottom pan.
- 9.6 Discard the tobacco, unless specifically asked to save the individual fractions, and brush sieves and pan clean. Each succeeding sample can be tested by repeating steps 9.1 - 9.6.
- 9.7 When finished, turn the ROTAP unit, timer and balance off.

10. Calculations

Results from PSD are reported as percent retained on the various sieves and as cumulative percents retained above and below certain designated sieve sizes. Example: +9 mesh and -14 mesh screens.

- 10.1 Percent retained calculations for the individual sieves and pan are derived from the following formula and reported to two places (0.00).

$$\% \text{ Retained Per Sieve} = \frac{\text{Tob. Wt. Retained on Individual Sieve}}{\text{Total Tob. Wt. Retained on all Sieves and Pans}} \times 100$$

- 10.2 The original sample weight must be compared with the total weight of tobacco retained on all sieves and pans. If the recovered weight is not equal to $100 \pm 2\%$ of the original weight, an investigation should be made.
- 10.3 Cumulative percentages are determined by totaling the individual percents obtained from the top of the stack down to and including the designated sieve. (Example: +9 mesh). To find a cumulative percent below a certain sieve level, total the percents obtained down to and including the designated sieve and subtract that total from 100. Results are reported to two places.

620011517

11. Quality Control Procedures

- 11.1 Obtain a bulk sample of cut tobacco and condition for 24 hours at $75^{\circ} \pm 2^{\circ}\text{F}$; $60\% \pm 2\%$ R.H.
- 11.2 Using a riffler or carousel splitter, split the tobacco sample until sample sizes of 50 ± 10 g are obtained. Place the control samples in pint Mason jars and seal tightly.
- 11.3 Analyze three of these control samples during the course of operation. One is analyzed at the beginning, one is analyzed during the middle of day/operation and one when testing is completed.
- 11.4 Average the cumulative percent results for the +9 and -14 sieves and calculate the ranges. These averages and ranges are plotted on \bar{X} bar and R charts (ref. 1).
- 11.5 If any one of the results obtained on controls falls outside the limits of control charts, sieves should be checked and retared. Another control should then be analyzed.

12. Operational Notes

- 12.1 Installation, Maintenance and Adjustments.
 - 12.1.1 The ROTAP unit must be firmly mounted to the floor or lab bench by placing two bolts in the mounting holes located on the instrument's base.
 - 12.1.2 The friction points use oil impregnated bronze bearings but an occasional drop of oil may be needed.
 - 12.1.3 Adjust the sieve support clamp so when the completed stack, lid and sieve cover are in place, the top edge of the sieve cover will align with the top edge of the carry plate.
 - 12.1.4 Adjust the vertical actuating rod so that the hammer drop, measured from the top of the arm rise to the center of the cork in the sieve cover, is $1\frac{5}{16}'' \pm 1/16''$.

620011518

- 12.2 It is suggested that the sieves and pan be tared to the same weight. This may be accomplished by adding brass strips and/or solder around the outside circumference. This allows the weights of the sieves and pan to be tared out on the balance and each sieve's tobacco weight to be read directly.
- 12.3 Any sample outside the range of 10 - 15% moisture content should be conditioned at $75^{\circ} \pm 2^{\circ}\text{F}$; $60 \pm 2\%$ R.H. for at least 24 hours. This is accomplished by spreading a thin layer of sample (about 1") on trays and positioning the trays so as to allow free air movement.
- 12.4 Bulk samples greater than the required sample weight should be split using the riffler or carousel splitter until the proper sample size is obtained.

13.0 References

1. Crain, W. O., "Shewhart Control Charting," SM-136, (6-9-80).

0061e

klc/R2

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SECTION C
FABRICATION

- C1 - FILTER ROD MANUFACTURE
- C2 - CIGARETTE INSPECTION - SAMPLE MAKING
- C3 - GARRANT-4 TRIM CHECK
- C4 - CIGARETTE ENDS STABILITY
- C5 - PACKAGE INSPECTION - SAMPLE PACKAGING

620011520

C1

BROWN & WILLIAMSON TOBACCO CORPORATIONSTANDARD INSPECTION PROCEDURE

TITLE: FILTER ROD MANUFACTURE
DEPARTMENT: DEVELOPMENT CENTER FABRICATION
BRANCH: DEVELOPMENT CENTER

SAMPLING & TESTING PROCEDURE:

1. Once the filter rod maker is running satisfactorily and the filter tow being processed is correctly aligned, begin collecting sample rods for the following determinations:
 - a. Circumference (mm)
 - b. Pressure Drop (in.)
 - c. Weight (mgs/100 rods)
 - d. Plasticizer (%)
2. To determine filter rod circumference, randomly collect 10 rods from the catcher table of the rod maker and measure their individual circumferences using a Filtrona Automatic Tape Circumference Gauge. If the average circumference of the 10 rods is within $\pm .05$ mm from target, the rods are on target. A second and third 10 rod sample will be taken and measured for confirmation. If the average circumference of the 10 rod initial sample is outside the limits, collect and measure two additional sets of 10 random rods. If three consecutive sets of sample rods exceed the specified limits, adjust the rod maker. Continue the process until three consecutive sets of sample rods are within allowable circumference variation. Rod circumference is then deemed to be on target.
3. Filter rod pressure drop will be determined the same time as circumference is being determined since there is an inner relationship between the two. The average rod pressure drop will be determined using the same sampling scheme and format that is used for average rod circumference determinations. At the time 10 random rods are collected for circumference measurements, a second 10 will be collected and measured in a Filtrona Automatic Pressure Drop Gauge. The allowable limits for pressure drop are $\pm .05$ " from target. Three consecutive sets of 10 rod samples must average within the specified limit before the pressure drop is considered on target. While, three consecutive sets of 10 rods must average outside the specified limits before a machine adjustment is made.

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BROWN & WILLIAMSON TOBACCO CORPORATION

620011522

STANDARD INSPECTION PROCEDUREFILTER ROD MANUFACTURESAMPLING & TESTING PROCEDURE: (Continued)

4. When the average rod circumference and pressure drop are on target, groups of 100 random rods will be collected and weighed to determine the "wet" weight of the rods. Three groups of 100 rods will be collected, weighed, and averaged. This average "wet" weight will be used to determine the percent of plasticizer.
5. To determine the plasticizer percentage, turn off the plasticizer applicator, wait one minute, and then collect 100 random "dry" rods. Weigh three consecutive groups of 100 dry rods and then average their weights. Percent plasticizer is calculated using this formula:

$$\frac{\text{AVERAGE "WET" WEIGHT} - \text{AVERAGE "DRY" WEIGHT}}{\text{AVERAGE "WET" WEIGHT}} \times 100 = \% \text{ PLASTICIZER}$$

The allowable plasticizer variations is target $\pm .5\%$

6. At maker start-up, all rods will be discarded until circumference, pressure drop, weight, and plasticizer are on target or within allowable limits.
7. Once the maker is producing acceptable quality rods, the rods will be put into trays holding approximately 4,000 rods.
8. A minimum of one circumference, pressure drop, and weight determination will be done on each tray as the rods are being made and trayed.
9. Trays of rods outside the specified limits will be discarded.
10. The data generated during the manufacture of a quantity of sample rods will be recorded on a Development Center Filter Rod Manufacture & Usage Form. A duplicate will accompany the rods to the cigarette making area. A copy of this form is attached.

0438M
(5/1/89)
Attachment

620011523



C2

BROWN & WILLIAMSON TOBACCO CORPORATIONSTANDARD INSPECTION PROCEDURE

TITLE: CIGARETTE INSPECTION - SAMPLE MAKING
DEPARTMENT: DEVELOPMENT CENTER - FABRICATION
BRANCH: DEVELOPMENT CENTER

SAMPLING & INSPECTION PROCEDURES:

1. Select an appropriate cigarette maker to make a designated sample product. After the maker is properly aligned and running efficiently, begin sampling and inspecting the product.
2. Measure the following parameters throughout the sample's production time:

A. Cigarette Weight

Wait approximately two minutes each time the maker is started before collecting samples for weight determinations. Randomly collect groups of 100 cigarettes by taking some from each side of the catcher's table. Weigh these consecutive groups of cigarettes. If each consecutive group is within ± 10 mgs. of the target, the weight is considered to be on target. If three consecutive group weights are out of the specified limits, check the maker to insure that the tobacco hopper is properly filled, the trim knives are in proper position, the Accu-Ray source box pass tube is clean, etc., before making a weight adjustment on the Accu-Ray Weight Controller.

After a correction is made, repeat the weighting process until the weight is on target. Record the weights in the column on a Weigh Sheet Form. A copy of the Weigh Sheet Form is attached.

B. Circumference

Randomly select groups of ten cigarettes including some from each side of the catcher's table. Measure circumference using a Filtrona Automatic Gauge. If three consecutive groups of ten cigarettes average within $\pm .05$ mm of the target, the cigarettes are on target. If three consecutive groups average outside the limits, or if it is obvious that the cigarettes are out of specification, make an adjustment to the folder and/or take other corrective action. Record the circumference data on a Weigh Sheet Form.

620011524

STANDARD INSPECTION PROCEDURECIGARETTE INSPECTION - SAMPLE MAKINGSAMPLING & INSPECTION PROCEDURES: (Continued)C. Ventilation

The sampling scheme for ventilation measurements will be the same as that for circumference. Ventilation data will be determined using a Filtrona Ventilation Gauge. If three consecutive groups of 10 cigarettes are within the specified limits, the cigarettes are considered to be on target. If three consecutive groups fall outside the specified limits or if an obvious fault is noted, corrective action will be taken such as adjusting or cleaning on-line laser equipment, changing tipping, and/or adjusting tipping adhesive application, etc. The acceptable limits for ventilation are $\pm 3\%$ from target. Ventilation data will be recorded on a Weigh Sheet Form.

D. Open and Sealed Pressure Drop

Open and sealed pressure drops are measured on the Filtrona Ventilation Gauge. These readings will be taken on the same group of cigarettes used for ventilation testing. Target values and deviation for these measurements are usually established by the Product Developer whose sample is being made, significant variation from target should be reported to the developer for corrective action.

3. Determine the percent trim at least once during any given period of sample manufacture. The target for a Garrant-4 maker is $30\% \pm 5\%$, but this target can be deviated if required to improve cigarette physical quality. Refer to Standard Inspection Procedure for Trim Checks for details on conducting this test.
4. Determine the ends stability of the product being made at least once during manufacturing time. Acceptable ends stability is 15 mgs or less. Refer to Standard Inspection Procedure for Ends Stability Testing and corrective action if necessary.
5. Monitor the sample cigarettes throughout the production run for physical defects and/or imperfections.

A. Defects(1) Loose Tip

Any tip not attached at least half way around the cigarette.

620011525

STANDARD INSPECTION PROCEDURECIGARETTE INSPECTION - SAMPLE MAKINGSAMPLING & INSPECTION PROCEDURES:A. Defects (Continued)(2) Cork Wrap "A"

An exposure of any portion of the filter or cigarette paper due to faulty wrapping of the tipping paper.

(3) Air Pockets

An air space between the cigarette and tipping paper, less than half way around.

(4) Torn

Any tear or hole in the cigarette paper.

(5) Appearance

Any dust, dirt, lubricant, ink smear, water and/or flavoring spots, wrong sample code number, no print on any portion of the cigarettes.

(6) Open Seams

An opening on all or any portion of the cigarette which allows tobacco to be exposed.

B. Imperfections(1) Cork Wrap "B"

Any wrinkle in the tipping or failure of the tipping to adhere to itself.

(2) Raw Seams

Any seam that can be "pealed back" at least 3/4 of the seam width along the entire seam length.

(3) Long and Short Tipping

Any tipping that is 1 mm or more longer or shorter than specification.

620011526

STANDARD INSPECTION PROCEDURECIGARETTE INSPECTION - SAMPLE MAKINGSAMPLING & INSPECTION PROCEDURES:B. Imperfections (Continued)(4) Print

Any too dark or too light, smeared, and 1 mm or more out of register.

(5) Bad Cut

Any rough, jagged, or slanted cut on either end of the cigarette.

(6) Mashed or Wrinkles

Any wrinkle in the cigarette paper or mashing in any area.

(7) Hard or Soft

Any cigarette which obviously contains too much or too little tobacco.

(8) Loose Ends

Any cigarette having insufficient tobacco in its tobacco section end.

6. Correct for defects and/or imperfections as quickly as they are found.

0490M
(5/20/89)

620011527

BROWN & WILLIAMSON TOBACCO COMPANY

BROWN & WILLIAMSON TOBACCO CORPORATIONSTANDARD INSPECTION PROCEDURE

TITLE: GARRANT-4 TRIM CHECK
DEPARTMENT: DEVELOPMENT CENTER - FABRICATION
BRANCH: DEVELOPMENT CENTER

SAMPLING & INSPECTION PROCEDURES:

1. Once a Garrant-4 cigarette maker is running efficiently and producing acceptable quality tobacco sections, determine the cigarette weight.
2. Weigh groups of 100 cigarettes until three consecutive groups are within ± 10 mgs of the specified target.
3. Make sure the top and bottom trim knives have not topped or bottomed out.
4. With the maker running at target speed of 2500 CPM, use a pretared container and for 30 seconds catch the trimmed tobacco as it exits the trim return unit.
5. When catching the trimmed tobacco, make certain that the tobacco hopper of the maker is filled to its normal capacity.
6. Weigh the accumulated trimmed tobacco and then convert the weight in grams to percent trim by using the charts which are available at the weighing station. A copy of one of these charts is attached.
7. The formula used on these charts to compute percent trim is as follows:

$$\% \text{ TRIM} = \frac{\text{WEIGHT OF TRIM}}{\text{CIGT. NET WGT X NO. OF CIGTS/30 SECOND}} \times 100$$

8. Normally the target for percent trim is $30\% \pm 5\%$, providing that the ends stability of the cigarettes being made is 15 mgs or less. If ends stability is greater than 15 mgs, the percent trim will be reduced beyond the specified limits, if necessary, by changing the feed gear in the maker's tobacco hopper. Reducing tobacco throughput and consequently percent trim increases tobacco particle size and usually improves ends stability.

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STANDARD INSPECTION PROCEDUREGARRANT-4 TRIM CHECKSAMPLING & INSPECTION PROCEDURES: (Continued)

9. If the percent trim exceeds the limits of $\pm 5\%$ from target, care should be taken in changing feed gears so that what results will not detrimentally affect the ends stability of the product being made.
10. A minimum of one trim check will be conducted for each sample product produced and the results will be recorded on the Development Center Work Request for each particular product.

0490M
(5/20/89)
Attachment

620011530.

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| TDR | | WT | | (MG) | | 555 | | 590 | | 595 | | 600 | | 605 | | 610 | | 615 | | 620 | | 625 | | 630 | | 635 | | 640 | | 645 | | 650 | | 655 | | 660 | | 665 | | 670 | | 675 | | 680 | | 685 | | 690 | | 695 | | 700 | | 705 | | 710 | | 715 | | 720 | | 725 | | 730 | | 735 | | 740 | | 745 | | 750 | | 755 | | 760 | | 765 | | 770 | | 775 | | 780 | | 785 | | 790 | | 795 | | 800 | | 805 | | 810 | | 815 | | 820 | | 825 | | 830 | | 835 | | 840 | | 845 | | 850 | | 855 | | 860 | | 865 | | 870 | | 875 | | 880 | | 885 | | 890 | | 895 | | 900 | | 905 | | 910 | | 915 | | 920 | | 925 | | 930 | | 935 | | 940 | | 945 | | 950 | | 955 | | 960 | | 965 | | 970 | | 975 | | 980 | | 985 | | 990 | | 995 | | 1000 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|-------|-----|-------|-----|-------|-----|-------|-----|-------|-----|-------|-----|-------|-----|-------|-----|-------|-----|-------|-----|-------|-----|-------|-----|-------|-----|-------|-----|-------|-----|-------|-----|-------|-----|-------|-----|-------|-----|-------|-----|-------|-----|-------|-----|-------|-----|-------|-----|-------|-----|-------|-----|-------|-----|-------|-----|-------|-----|-------|-----|-------|-----|-------|-----|-------|-----|-------|-----|-------|-----|-------|-----|-------|-----|-------|-----|-------|-----|-------|-----|-------|-----|-------|-----|-------|-----|-------|-----|-------|-----|-------|-----|-------|-----|-------|-----|-------|-----|-------|-----|-------|-----|-------|-----|-------|-----|-------|-----|-------|-----|-------|-----|-------|-----|-------|-----|-------|-----|-------|-----|-------|-----|-------|-----|-------|-----|-------|-----|-------|-----|-------|-----|-------|-----|-------|-----|-------|-----|-------|-----|-------|-----|-------|-----|-------|-----|-------|-----|-------|-----|-------|-----|-------|-----|-------|-----|-------|-----|-------|-----|-------|-----|-------|-----|-------|-----|-------|-----|-------|-----|-------|-----|-------|-----|-------|-----|-------|-----|-------|-----|-------|-----|-------|-----|-------|-----|-------|-----|-------|-----|-------|-----|-------|-----|-------|-----|-------|-----|-------|-----|-------|-----|-------|-----|-------|-----|-------|-----|-------|-----|-------|-----|-------|-----|-------|-----|-------|-----|-------|-----|-------|-----|-------|-----|-------|-----|-------|-----|-------|-----|-------|-----|-------|-----|-------|-----|-------|-----|-------|-----|-------|-----|-------|-----|-------|-----|-------|-----|-------|-----|-------|-----|-------|-----|-------|-----|-------|-----|-------|-----|-------|-----|-------|-----|-------|-----|-------|-----|-------|-----|-------|-----|-------|------|
| 017.5 | 320 | 322.5 | 325 | 327.5 | 330 | 332.5 | 335 | 337.5 | 340 | 342.5 | 345 | 347.5 | 350 | 352.5 | 355 | 357.5 | 360 | 362.5 | 365 | 367.5 | 370 | 372.5 | 375 | 377.5 | 380 | 382.5 | 385 | 387.5 | 390 | 392.5 | 395 | 397.5 | 400 | 402.5 | 405 | 407.5 | 410 | 412.5 | 415 | 417.5 | 420 | 422.5 | 425 | 427.5 | 430 | 432.5 | 435 | 437.5 | 440 | 442.5 | 445 | 447.5 | 450 | 452.5 | 455 | 457.5 | 460 | 462.5 | 465 | 467.5 | 470 | 472.5 | 475 | 477.5 | 480 | 482.5 | 485 | 487.5 | 490 | 492.5 | 495 | 497.5 | 500 | 502.5 | 505 | 507.5 | 510 | 512.5 | 515 | 517.5 | 520 | 522.5 | 525 | 527.5 | 530 | 532.5 | 535 | 537.5 | 540 | 542.5 | 545 | 547.5 | 550 | 552.5 | 555 | 557.5 | 560 | 562.5 | 565 | 567.5 | 570 | 572.5 | 575 | 577.5 | 580 | 582.5 | 585 | 587.5 | 590 | 592.5 | 595 | 597.5 | 600 | 602.5 | 605 | 607.5 | 610 | 612.5 | 615 | 617.5 | 620 | 622.5 | 625 | 627.5 | 630 | 632.5 | 635 | 637.5 | 640 | 642.5 | 645 | 647.5 | 650 | 652.5 | 655 | 657.5 | 660 | 662.5 | 665 | 667.5 | 670 | 672.5 | 675 | 677.5 | 680 | 682.5 | 685 | 687.5 | 690 | 692.5 | 695 | 697.5 | 700 | 702.5 | 705 | 707.5 | 710 | 712.5 | 715 | 717.5 | 720 | 722.5 | 725 | 727.5 | 730 | 732.5 | 735 | 737.5 | 740 | 742.5 | 745 | 747.5 | 750 | 752.5 | 755 | 757.5 | 760 | 762.5 | 765 | 767.5 | 770 | 772.5 | 775 | 777.5 | 780 | 782.5 | 785 | 787.5 | 790 | 792.5 | 795 | 797.5 | 800 | 802.5 | 805 | 807.5 | 810 | 812.5 | 815 | 817.5 | 820 | 822.5 | 825 | 827.5 | 830 | 832.5 | 835 | 837.5 | 840 | 842.5 | 845 | 847.5 | 850 | 852.5 | 855 | 857.5 | 860 | 862.5 | 865 | 867.5 | 870 | 872.5 | 875 | 877.5 | 880 | 882.5 | 885 | 887.5 | 890 | 892.5 | 895 | 897.5 | 900 | 902.5 | 905 | 907.5 | 910 | 912.5 | 915 | 917.5 | 920 | 922.5 | 925 | 927.5 | 930 | 932.5 | 935 | 937.5 | 940 | 942.5 | 945 | 947.5 | 950 | 952.5 | 955 | 957.5 | 960 | 962.5 | 965 | 967.5 | 970 | 972.5 | 975 | 977.5 | 980 | 982.5 | 985 | 987.5 | 990 | 992.5 | 995 | 997.5 | 1000 |

***** RUN TIME = 30 SECONDS *****

***** MAKER SPEED = 2500 *****

***** X = GREATER THAN 100% *****

***** O = LESS THAN 1% *****

C4

BROWN & WILLIAMSON TOBACCO CORPORATIONSTANDARD INSPECTION PROCEDURE

TITLE: CIGARETTE ENDS STABILITY
DEPARTMENT: DEVELOPMENT CENTER - FABRICATION
BRANCH: DEVELOPMENT CENTER

SAMPLING & TESTING PROCEDURES:

1. An ends stability determination will be conducted on each sample where a blend change is involved.
2. A Borgwaldt Ends Stability Tester will be used.
3. Once a cigarette maker is running satisfactorily with good cigarette weight and overall quality, a sample of 100 random cigarettes will be collected and grouped weighed. If the group weight is on target or within ± 10 mgs, the cigarettes will be divided into two groups 50 each and placed in the tester with their tobacco ends facing toward the ends of the tester.
4. The Borgwaldt Tester is pre-set to make 268 revolutions and will stop automatically.
5. After testing, the 100 cigarettes are weighed again. The difference between the weight of the cigarettes before testing and afterwards is the ends stability in mgs.
6. An ends stability reading of 15 mgs or less would be acceptable.
7. If the reading exceeds 15 mgs, another sample will be collected and tested.
8. If the retest is still above the acceptable limit, the cigarette maker will be stopped and corrective action will be taken.
9. After corrective action, such as a feed gear change, another test will be conducted.
10. Results of the tests are reported on the Sample Specification Sheets and are kept in a permanent Development Center log book.

0455M
(5/1/89)
Attachment

620011532



05

BROWN & WILLIAMSON TOBACCO CORPORATIONSTANDARD INSPECTION PROCEDURE

TITLE: PACKAGE INSPECTION - SAMPLE PACKAGING
DEPARTMENT: DEVELOPMENT CENTER - FABRICATION
BRANCH: DEVELOPMENT CENTER

SAMPLING & INSPECTION PROCEDURES:

1. The primary purpose of this procedure is to detect and correct faulty packer functions. However during the process, any cigarette defect and/or imperfection noted will be reported to the Cigarette Making Supervisor.
2. Begin the inspection by ejecting and then inspecting 12 consecutive packages once the packer is running efficiently. The packages will be ejected at the packer ejection trough and will be inspected to determine if the packer arbors and compression pockets are in good condition. This will be done for each sample product packaged.
3. Inspect these packages for label and foil defects and imperfections which are described below:

A. ROLL LABELS(1) Defects

- (a) Dirty - Any form of dirt, grease, or other foreign materials on the labels.
- (b) Register - All seams will be formed properly and be within 1/8" of theoretical fold lines.
A notch of more than 1/16" at the top of the label will be unacceptable.
- (c) Fold - Must be such that the printing on the bottom of the package is clearly visible.
- (d) Seal - Must be adequately sealed to prevent turning back of any portion of the side seam or bottom fold.

620011533

STANDARD INSPECTION PROCEDUREPACKAGE INSPECTION - SAMPLE PACKAGINGSAMPLING & INSPECTION PROCEDURES:A. ROLL LABELS (Continued)(2) Imperfections

- (a) Register - Any seam which is not parallel to the theoretical fold line but has less than 1/8" deviation. Any fold which does not fold over itself, but does not have a notch greater than 1/8".
- (b) Fold - The top of the label should be within 1/16" of the top of the foil fold.

B. CUT LABELS

All defects and imperfections listed for roll labels apply for cut labels except for the second sentence of Item 2 under defects.

C. FOIL(1) Defects

- (a) Open - Any exposure of the cigarettes either top, bottom, or side due to faulty folds.
- (b) Appearance - Any scratches or marks on the foil which allow the paper backing to show through.
- (c) Torn - Must be free of tears.

(2) Imperfections

- (a) Fold - Any wrinkle or poor "dead fold" on the side or bottom which does not expose the cigarettes.

620011534

STANDARD INSPECTION PROCEDUREPACKAGE INSPECTION - SAMPLE PACKAGINGSAMPLING & INSPECTION PROCEDURES: (Continued)

4. The following materials will be monitored for defects and imperfections and corrected if necessary throughout the packaging of any given sample:

A. CLOSURES

(1) Defects

- (a) Position - Must be centered and parallel to the package sides. Deviation not to exceed 1/8".
- (b) Adhesion - Must have two glue lines and be bonded to the label.
- (c) Correct Closure - Must be the correct one specified for the specific product being packaged.

(2) Imperfections

Position - Any deviation less than 1/8" from parallel to the sides. Any closure which is not equally distributed on each side of the package.

B. FILM

(1) Defects

- (a) Melted - Any melted area in any position on the package.
- (b) Wrap - Any wrap so tight the package can not be pulled out and/or so tight that the package is bowed or wrinkled.
- (c) Seal - Any unsealed area where air can enter between the film and label.

(2) Imperfections

- (a) Wrinkles & Creases - Any wrinkle or crease which does not interfere with proper seam seals.
- (b) Wrap - Any wrap so loose that it looks "baggy" around the package.

620011535.



STANDARD INSPECTION PROCEDURE
PACKAGE INSPECTION - SAMPLE PACKAGING

SAMPLING & INSPECTION PROCEDURES:

4. The following materials will be monitored for defects and imperfections and corrected if necessary throughout the packaging of any given sample: (Continued)

C. TEAR TAPE

(1) Defects

- (a) Length - Must completely encircle the package.
- (b) Adhesion - Must be completely adhered to the film.
- (c) Alignment - Must fold upon itself or be gapped no more than the width of the tear tape.
- (d) Pull Tab - Must be cut properly and be 1/8" in length.

(2) Imperfections

- (a) Alignment - Any gap between the ends of the tear tape where they must meet on the package is an imperfection.
- (b) Location - Must be $3/16" \pm 1/16"$ from the top of the package.

D. CARTONS

(1) Defects

- (a) Code Dating - Wrong sample number stamped on carton.
- (b) Adhesion - Must be sealed along entire gluing area.
- (c) Folds - Must fold correctly along all carton scored lines.
- (d) Appearance - All dirt and grease marks, tears, folded flaps, creases, and etc., are unacceptable.

(2) Imperfections

- (a) Code Dating - Must be legible.
- (b) Adhesion - Carton long flap will be properly sealed.

620011536

STANDARD INSPECTION PROCEDUREPACKAGE INSPECTION - SAMPLE PACKAGINGSAMPLING & INSPECTION PROCEDURES:

5. Before any packages are placed into cartons, six packages will be tested on the CEP Pack Tester. A reading of 50 or more on each package indicates that the top, bottom, and side seals on the film overwrap are satisfactory.
6. At least once each day, the various detection systems on the packer and overwrap machines will be tested.
 - A. Missing Cigarette - Two broken cigarettes should be inserted in the veins of the packer in such a way so as to activate both the front and back missing cigarette and ends detectors.
 - B. Missing Foil - A package should be inverted in the chute exiting the packer and entering the overwrap machine to activate the missing foil detector.
 - C. Missing Closure - A closure should be removed from a package to activate the bell alarm in the chute leading to the overwrap machine.
 - D. Missing Tear Tape - The tear tape if removed from the micro switch on the overwrap machine should stop the machine.
7. Package quality will be closely monitored by the packaging crew who will notify the supervisor if a problem occurs.

0490M
(5/20/89)

620011537

BROWN & WILLIAMSON TOBACCO CORPORATION

TRAVEL SCHEDULE

DATE: December 1, 1989

DISTRIBUTION: K. A. Manecke, B. A. Bandy

ITINERARY OF: K. A. Manecke and T. E. Bobbitt/mb/399

| <u>DATE</u> | <u>DESTINATION</u> | <u>TIME</u> | | <u>FLIGHT NO. (Other)</u> |
|-------------|--------------------|--------------|---------------|-------------------------------|
| | | <u>LEAVE</u> | <u>ARRIVE</u> | |
| 11/4/89 | Atlanta, GA | 2:56 PM | 4:08 PM | Delta 997 |
| | Macon, GA | | | Rental Car |
| 11/5/89 | Atlanta, GA | | | Rental Car |
| | Louisville, KY | 8:48 PM | 9:55 PM | Delta 292 |

6007T

HOTEL OR
OTHERADDRESS: Best Western
Riverside Drive
Macon, GA

PURPOSE OF

TRIP: Assist of production of Macon/Development Center comparison samples.

620011538

BROWN & WILLIAMSON TOBACCO CORPORATION

TRAVEL SCHEDULE

DATE: September 13, 1989

DISTRIBUTION: K. A. Manecke, B. A. Bandy

ITINERARY OF: K. A. Manecke/mb/967

| <u>DATE</u> | <u>DESTINATION</u> | <u>TIME</u> | | <u>FLIGHT NO.</u> <u>(Other)</u> |
|-------------|--------------------|--------------|---------------|-------------------------------------|
| | | <u>LEAVE</u> | <u>ARRIVE</u> | |
| 9/18/89 | Atlanta, GA | 9:57 AM | 11:09 AM | Delta 401 |
| | Macon, GA | | | Rental Car |
| 9/22/89 | Atlanta, GA | | | Rental Car |
| | Louisville, KY | 1:19 PM | 2:25 PM | Delta 1134 |

5879T

HOTEL OR
OTHERADDRESS: Best Western
Riverside Drive
Macon, GA
(912) 743-6311

PURPOSE OF

TRIP: Assist in Start-Up of Barclay Charcoal - Japan

620011539



SECTION D

PRIMARY

D1 - MOISTURE MONITORING

D2 - HUMECTANT SAMPLING

D3 - CUT TOBACCO MENTHOL

620011540

D1

BROWN & WILLIAMSON TOBACCO CORPORATIONSTANDARD INSPECTION PROCEDURE

TITLE: MOISTURE MONITORING - PRIMARY & FABRICATION

DEPARTMENT: DEVELOPMENT CENTER PRIMARY & FABRICATION

BRANCH: DEVELOPMENT CENTER

SAMPLING PROCEDURE:

1. For each operation processed on Development Center primary equipment, moisture samples will be collected at the various critical areas of the process. The sample points, number of samples required, and targets are as follows:

| <u>SAMPLING LOCATION</u> | <u>NUMBER OF SAMPLES</u> | <u>TARGET MOISTURE CONTENT</u> |
|--|----------------------------------|--|
| Enter Casing Cylinder - (F.C.) | 10 | 15% |
| Enter Casing Cylinder - (Bur.) | 10 | 15% |
| Exit Cooling Cylinder - (F.C.) | 10 | 21% |
| Exit Cooling Cylinder - (Non-Redried Burley) | 10 | 23% ** |
| Exit Cooling Cylinder - (Redried Burley) | 20 | 30% |
| Cooling Section Apron Dryer - (Redried Burley) | 30 | 6% *** |
| Exit Apron Dryer - (Redried Burley) | 20 | 16% |
| Exit Top Dressing Cylinder - (Redried Burley) | 10 | 21% |
| Exit Cutter - (Blend) | 5 | 21% |
| Exit Blender/Bulker - (Blend) | 15 | 13% |
| Enter Cigarette Maker Feeder - (Blend) | 5 | 14.5% * |

* The target moisture content at the maker feeder will vary depending upon what target is called for in the cigarette manufacturing specification.

** Can differ depending upon where reconstituted tobacco is added.

*** Any value between 3% and 9% is acceptable if standard deviation is below 5.85.

620011541

STANDARD INSPECTION PROCEDUREMOISTURE MONITORING - PRIMARY & FABRICATIONSAMPLING PROCEDURE: (Continued)

2. The moisture samples will be randomly collected over the entire operation. They will be placed in 1/2 pint jars, labeled, and sent to Development Center's Quality Assurance Laboratory.
3. Averages for each moisture sampling location are computed weekly and plotted on the graphs which are posted in the primary processing area.
4. Consistent long-term deviation from target will be cause for investigative action.

0529M
(6/1/89)

620011542



D2

BROWN & WILLIAMSON TOBACCO CORPORATIONSTANDARD INSPECTION PROCEDURE

TITLE: HUMECTANT SAMPLING - PRIMARY PROCESSING

DEPARTMENT: DEVELOPMENT CENTER - PRIMARY
TECHNICAL CENTER - TECHNICAL SERVICES

BRANCH: DEVELOPMENT CENTER

SAMPLING PROCEDURE:

1. For each operation processed on Development Center primary equipment, humectant samples will be collected at the critical areas of the process. The sample points, number of samples required, and targets are as follows:

| <u>SAMPLING LOCATION</u> | <u>SAMPLES</u> | <u>ACCEPTANCE RANGES</u> |
|--------------------------|----------------|--|
| Exit Cutter | 1 | No Accept/Reject Limits |
| Exit Blender/Bulker | 6 | Propylene Glycol - 40% to 75% of Theoretical Target |
| | | Glycerin - 60% to 95% of Theoretical Target |

2. The samples will be collected in 1/2 pint jars, labeled, and sent to Technical Center along with a Chemical Analysis Request Form.
3. Blends which exceed the acceptable range limits will be rejected, unless the product developer involved decides that the variance is not critical.

0529M
(6/1/89)

620011543

DATE: JUNE 1, 1989

D3



Page 1 of 1

BROWN & WILLIAMSON TOBACCO CORPORATION

STANDARD INSPECTION PROCEDURE

TITLE: CUT TOBACCO MENTHOL SAMPLING
DEPARTMENT: DEVELOPMENT CENTER PRIMARY & TECHNICAL CENTER LABORATORIES
BRANCH: DEVELOPMENT CENTER

SAMPLING PROCEDURE:

1. Each skip of mentholated cut tobacco blend will be sampled and analyzed for menthol content.
2. After mentholation, the skips of cut tobacco will be held for a minimum of two hours before samples are collected.
3. A two-ounce vial of cut tobacco will be collected from each skip, properly identified, and along with a Chemical Analysis Request Form sent to Technical Center.
4. The menthol content of the cut tobacco from each skip sampled will be averaged to determine if the tobacco in question is on target or within acceptable limits. The limits are target to target + 0.070%.
5. Any individual skip which is below target or above + 0.070% will not be used to produce a sample product.

0529M
(6/1/89)

620011544



SECTION E
QUALITY ASSURANCE

- E1 - CIGARETTE SAMPLING - PREMASKED PRODUCTS
- E2 - FILTER ROD CIRCUMFERENCE GAUGE STANDARDIZATION
- E3 - INTERLABORATORY CROSS-CHECKS - CIGARETTE VENT & CIRCUMFERENCE
GAUGES
- E4 - INTERLABORATORY CROSS-CHECKS - PACKAGE LEAK DETECTOR
- E5 - MOISTURE OVEN CROSS-CHECKS
- E6 - OUTGOING QUALITY AUDIT

620011545

DATE: JUNE 1, 1989



Page 1 of 1

E1

BROWN & WILLIAMSON TOBACCO CORPORATION

STANDARD INSPECTION PROCEDURE

TITLE: CIGARETTE SAMPLING - PREMAKED PRODUCTS
DEPARTMENT: DEVELOPMENT CENTER - FABRICATION
TECHNICAL CENTER - TECHNICAL SERVICES
BRANCH: DEVELOPMENT CENTER

SAMPLING PROCEDURE:

1. For every sample cigarette manufacture where the cigarettes are to be masked before being packaged, samples will be collected for routine analyses by Technical Center.
2. Thirty (30) random jar samples of about 25 cigarettes each will be collected over the time of manufacture.
3. The samples will be identified and delivered to Technical Center along with a request for analysis.
4. Results of the analyses will be published along with all the other data generated on the sample product on a Sample Specification Sheet. All the data generated will be used to determine the product's acceptability.

0529M
(6/1/89)

620011546



E2

BROWN & WILLIAMSON TOBACCO CORPORATIONSTANDARD INSPECTION PROCEDURE

TITLE: FILTER ROD CIRCUMFERENCE GAUGE STANDARDIZATION
DEPARTMENT: DEVELOPMENT CENTER - FABRICATION
BRANCH: DEVELOPMENT CENTER

SAMPLING & TESTING PROCEDURES:

1. This test is conducted to determine the "drift" which occurs day-to-day in the Filtrona Tape Circumference Gauge used for measuring filter rods.
2. As the need arises, Fabrication will make a tray of filter rods which have been made as close to specified targets as possible.
3. This tray is stored in Development Center's Quality Assurance Laboratory and is used to provide the rods used for checking this circumference gauge.
4. Each day the gauge is calibrated with standards, and then 25 of the rods are measured in it. The same 25 rods are used again until their physical quality is unacceptable.
5. Averages and standard deviations are calculated daily and compared to previous results to determine if the "drift" is such that the gauge requires attention.

0490M
(5/20/89)

620011547



E3

BROWN & WILLIAMSON TOBACCO CORPORATIONSTANDARD INSPECTION PROCEDURE

TITLE: INTERLABORATORY CROSS-CHECK - CIGARETTE VENTILATION & CIRCUMFERENCE GAUGES

DEPARTMENT: DEVELOPMENT CENTER - QUALITY ASSURANCE

BRANCH: DEVELOPMENT CENTER

SAMPLE PREPARATION PROCEDURE:

1. Cigarette ventilation and circumference cross-checks are conducted between Development Center, Technical Center, and Macon Branch. Cross-checks are done to standardize Filtrona Ventilation Meters and Circumference Gauges situated at each facility. The cigarettes used in the cross-checks are produced in Development Center. Usually two production runs a year are enough to provide all the cigarettes required to do the checks. During production, both ventilation and circumference are tightly controlled. After manufacture, the cigarettes are randomized before and after packaging to insure that each participant uses cigarettes from the same population. The cigarettes are kept in Technical Center and are distributed to the participants. Development Center's Quality Assurance Laboratory will issue the cigarettes each day.

TESTING PROCEDURE:

1. Each morning, the Filtrona Circumference Gauge and Ventilation Meter will be calibrated using designated standards for each.
2. After calibration each day, 25 of the cigarettes mentioned in Item 1 under Sample Preparation Procedure will be measured in the Filtrona Circumference Gauge. This same group of 25 will be measured in Filtrona Ventilation Meter. The cigarettes are discarded, and a new group is used the following day.
3. The data generated under Item 2 will be recorded on a Cross-Check Sheet. A copy of the Cross-Check Sheet is attached.
4. The Cross-Check Sheet is sent to Technical Center and the data is compared to that generated in Technical Center and Macon Branch.
5. The results are compiled on a data sheet by Technical Services, and a copy is sent to Development Center. A copy of the Data Sheet is attached.

0490M/(5/20/89)
Attachments

620011548

E3

TO: Mr. J. F. Nall Mr. F. O. Simmons Mr. H. S. Porenski Mr. T. E. Bobbitt
 Mr. R. H. Honeycutt Mr. J. W. Hester Mr. G. Grutchfield Mr. T. D. Marquardt
 Mr. J. P. Markham Mr. C. F. Gregory Mr. B. A. Bandy Mr. W. Sanders
 FROM: C. Owens Mr. R. Smalley

Listed below are current statistics by method for each laboratory for the week beginning 4/19/89 and ending 4/25/89. Problem areas are indicated by a (✓) in the columns with the heading "Difference Unacceptable".

Reference Sample = KCC 20, SERIES 24, PKSL6, BFV4

| ANALYSIS | RESEARCH | | MACON | | DEVELOPMENT CENTER | | WINSTON SALEM | | Difference Unacceptable | | | |
|------------------------------------|----------|------|-------|------|--------------------|-------|---------------|-----|-------------------------|------|----|-----|
| | x | s | x | s | x | s | x | s | R* | M* | DC | WS* |
| Propylene Glycol (Cross-check Cig) | 1.22 | .02 | 1.29 | .01 | (1) | (1) | (1) | (1) | | | | |
| Glycerin (Cross-check Cig) | 1.93 | .08 | 1.94 | .03 | (1) | (1) | (1) | (1) | | | | |
| Propylene Glycol (20 mg solution) | 19.87 | .13 | 19.98 | .12 | (1) | (1) | (1) | (1) | | | | |
| Glycerin (20 mg solution) | 20.25 | .57 | 19.82 | .50 | (1) | (1) | (1) | (1) | | | | |
| Menthol | .59 | .01 | .61 | .01 | (1) | (1) | (1) | (1) | | ✓(3) | | |
| Pressure Drop | (2) | (2) | 6.5 | .13 | (1) | (1) | (1) | (1) | | | | |
| Ventilation | (2) | (2) | 35.1 | .74 | 35.7 | 2.43 | (1) | (1) | | | | |
| Ends Stability | 2.1 | .32 | 2.9 | .31 | (1) | (1) | (1) | (1) | | | | |
| Gross Weight | 997 | 8.05 | 1003 | 6.05 | (1) | (1) | (1) | (1) | | | | |
| Non-Tob. Weight | (1) | (1) | 2.64 | 1.62 | (1) | (1) | (1) | (1) | | | | |
| Oven Moisture | 15.43 | .08 | 15.25 | .10 | 15.44 | .15 | 15.36 | .41 | | | | |
| Circumference | (2) | (2) | 24.96 | .01 | 24.94 | .03 | (1) | (1) | | | | |
| Coal Retention | 55 | 2.18 | (1) | (1) | (1) | (1) | (1) | (1) | | | | |
| Cigarette Moisture | 13.67 | .06 | 13.59 | .13 | (1) | (1) | (1) | (1) | | | | |
| Fill-Val. (as-is) | 7.85 | .03 | 7.78 | .04 | (1) | (1) | (1) | (1) | | | | |
| Fill-Val. (correc.) | 6.79 | .17 | 6.78 | .07 | (1) | (1) | (1) | (1) | | | | |
| Fill-Val. (moisture) | 11.89 | .25 | 11.82 | .09 | (1) | (1) | (1) | (1) | | | | |
| Pack Leak Detector | 75 | 5.80 | (1) | (1) | 75 | 14.62 | (1) | (1) | | | | |
| Menthol (10 mg solution) | 10.05 | .03 | 9.99 | .05 | (1) | (1) | (1) | (1) | | | | |

* R = Research M = Macon D.C. = Development Center WS = Winston-Salem

COMMENTS: (1) = Analysis not performed routinely.

(2) = NO DATA AVAILABLE

(3) = METHOD UNDER INVESTIGATION

620011549

CROSS CHECK SHEET

VENTILATION (X)

CIRCUMFERENCE (mm)

FILTRONA-1

FILTRONA-2

CIRCUMFERENCE (MM)

1 _____
 2 _____
 3 _____
 4 _____
 5 _____
 6 _____
 7 _____
 8 _____
 9 _____
 10 _____
 11 _____
 12 _____
 13 _____
 14 _____
 15 _____
 16 _____
 17 _____
 18 _____
 19 _____
 20 _____
 21 _____
 22 _____
 23 _____
 24 _____
 25 _____

| | |
|-------|--|
| 24.60 | |
| 24.65 | |
| 24.70 | |
| 24.75 | |
| 24.80 | |
| 24.85 | |
| 24.90 | |
| 24.95 | |
| 25.00 | |
| 25.05 | |
| 25.10 | |
| 25.15 | |
| 25.20 | |

 \bar{X} = _____ \bar{X} = _____

S. D. = _____

S. D. = _____

R = _____

R = _____

DATE: _____

TEMP. _____

SUPERVISOR: _____

R/HX _____

620011550

3256M



E4

BROWN & WILLIAMSON TOBACCO CORPORATIONSTANDARD INSPECTION PROCEDURE

TITLE: INTERLABORATORY CROSS-CHECK - PACKAGE LEAK DETECTION

DEPARTMENT: DEVELOPMENT CENTER - QUALITY ASSURANCE

BRANCH: DEVELOPMENT CENTER

TESTING PROCEDURE:

1. Once each day, the CEP (Custom Electrical Panels) Package Leak Detector is calibrated using standards which should read 11 and 28 on the electrical digital read-out of the detector.
2. Ten packages of cigarettes which are issued by Development Center's Quality Assurance Laboratory will be tested on the leak detector.
3. The individual reading is recorded on a Cross-Check Sheet and sent to the Technical Services Laboratory. A copy of the Cross-Check Sheet is attached.
4. Technical Services will conduct an identical test on their leak detector using packages from the same population as those used in Development Center.
5. The results will be tabulated in Technical Center and issued on a Weekly Data Sheet. Unacceptable differences are noted on this sheet so that investigative action can be initiated.

0490M
(5/20/89)
Attachment

620011551

L4

VENTILATION (%)

1 _____
 2 _____
 3 _____
 4 _____
 5 _____
 6 _____
 7 _____
 8 _____
 9 _____
 10 _____
 11 _____
 12 _____
 13 _____
 14 _____
 15 _____
 16 _____
 17 _____
 18 _____
 19 _____
 20 _____
 21 _____
 22 _____
 23 _____
 24 _____
 25 _____

 \bar{X} = _____

S. D. = _____

R = _____

CIRCUMFERENCE (mm)

| | |
|-------|--|
| 24.60 | |
| | |
| 24.65 | |
| | |
| 24.70 | |
| | |
| 24.75 | |
| | |
| 24.80 | |
| | |
| 24.85 | |
| | |
| 24.90 | |
| | |
| 24.95 | |
| | |
| 25.00 | |
| | |
| 25.05 | |
| | |
| 25.10 | |
| | |
| 25.15 | |
| | |
| 25.20 | |

 \bar{X} = _____

S. D. = _____

R = _____

CROSS CHECK SHEET

FILTRONA-1

FILTRONA-2

CIRCUMFERENCE (MM)

DATE: _____

TEMP. _____

SUPERVISOR: _____

R/H% _____

620011552

3256M

TO: Mr. J. P. Nall Mr. P. O. Simmons Mr. H. S. Porenski Mr. T. E. Bobbitt
 Mr. R. H. Hone Mr. J. W. Hester Mr. G. Crutchfield Mr. T. D. Marquess
 Mr. J. P. Markham Mr. C. F. Gregory Mr. B. A. Bandy Mr. W. Sanders
 FROM: C. Owens Mr. R. Smalley

Listed below are current statistics by method for each laboratory for the week beginning 4/19/84 and ending 4/25/84. Problem areas are indicated by a (✓) in the columns with the heading "Difference Unacceptable"

Reference Sample = KCC 20, SERIES 24, PKSL6, BFV4

| ANALYSIS | RESEARCH | | MACON | | DEVELOPMENT CENTER | | WINSTON SALEM | | Difference Unacceptable | | | |
|------------------------------------|----------|------|-------|------|--------------------|-------|---------------|-----|-------------------------|----|----|-----|
| | X | S | X | S | X | S | X | S | R* | M* | DC | WS* |
| Propylene Glycol (Gross-check Cig) | 1.22 | .02 | 1.29 | .01 | (1) | (1) | (1) | (1) | | | | |
| Glycerin (Gross-check Cig) | 1.93 | .08 | 1.94 | .03 | (1) | (1) | (1) | (1) | | | | |
| Propylene Glycol (20 mg solution) | 19.87 | .13 | 19.98 | .12 | (1) | (1) | (1) | (1) | | | | |
| Glycerin (20 mg solution) | 20.25 | .57 | 19.82 | .50 | (1) | (1) | (1) | (1) | | | | |
| Menthol | .59 | .01 | .61 | .01 | (1) | (1) | (1) | (1) | | ✓ | | |
| Pressure Drop | (2) | (2) | 6.5 | .13 | (1) | (1) | (1) | (1) | | | | |
| Ventilation | (2) | (2) | 35.1 | .74 | 35.7 | 2.43 | (1) | (1) | | | | |
| Ends Stability | 2.1 | .32 | 2.9 | .31 | (1) | (1) | (1) | (1) | | | | |
| Gross Weight | 997 | 8.05 | 1003 | 6.05 | (1) | (1) | (1) | (1) | | | | |
| Non-Tob. Weight | (1) | (1) | 2.64 | 1.62 | (1) | (1) | (1) | (1) | | | | |
| Oven Moisture | 15.43 | .08 | 15.25 | .10 | 15.44 | .15 | 15.36 | .41 | | | | |
| Circumference | (2) | (2) | 24.96 | .01 | 24.94 | .03 | (1) | (1) | | | | |
| Coal Retention | 55 | 2.18 | (1) | (1) | (1) | (1) | (1) | (1) | | | | |
| Cigarette Moisture | 13.67 | .06 | 13.59 | .13 | (1) | (1) | (1) | (1) | | | | |
| Fill-Val. (as-is) | 7.85 | .03 | 7.78 | .04 | (1) | (1) | (1) | (1) | | | | |
| Fill-Val. (correc.) | 6.79 | .17 | 6.78 | .07 | (1) | (1) | (1) | (1) | | | | |
| Fill-Val. (moisture) | 11.89 | .25 | 11.82 | .09 | (1) | (1) | (1) | (1) | | | | |
| Pack Leak Detector | 75 | 5.80 | (1) | (1) | 75 | 14.62 | (1) | (1) | | | | |
| Menthol (10 mg solution) | 10.05 | .03 | 9.99 | .05 | (1) | (1) | (1) | (1) | | | | |

* R = Research M = Macon D.C. = Development Center WS = Winston-Salem

COMMENTS: (1) = Analysis not performed routinely.

(2) = NO DATA AVAILABLE

(3) = METHOD UNDER INVESTIGATION

620011553



E5

BROWN & WILLIAMSON TOBACCO CORPORATIONSTANDARD INSPECTION PROCEDURE

TITLE: MOISTURE OVEN CROSS-CHECKS
DEPARTMENT: DEVELOPMENT CENTER - QUALITY ASSURANCE
BRANCH: DEVELOPMENT CENTER

SAMPLING & TESTING PROCEDURE:

1. Hermetically sealed containers of cut tobacco are supplied to each Branch (Macon, Winston-Salem, Development Center, and Technical Services) by Technical Center. All the tobacco is taken from the same population of equilibrated tobacco.
2. Daily if possible, two moisture oven tins are filled with the tobacco taken from the sealed container. Approximately ten grams of tobacco are put in each preweighed tin.
3. Both tins are placed on the middle shelf in the moisture oven with one of these being placed in the center of the shelf.
4. The moisture content is determined by using the current moisture oven procedure.
5. The results are tabulated and sent to Technical Services Laboratory where all the results are recorded on an Analysis Report Form and also plotted on a graph.
6. A copy of the report is sent to all interested parties. A copy is attached.
7. The report indicates when differences are unacceptable and need investigation.

0490M
5/20/89
Attachment

620011554

TO: Mr. J. F. Nail Mr. F. O. Simmons Mr. H. S. Porenski Mr. T. E. Bobbitt
 Mr. R. H. Honeycutt Mr. J. W. Hester Mr. G. Crutchfield Mr. T. D. Marquardt
 Mr. J. P. Markham Mr. C. F. Gregory Mr. B. A. Bandy Mr. W. Sanders
 Mr. R. Smalley

FROM: G. Owens

Listed below are current statistics by method for each laboratory for the week beginning 4/9/89 and ending 4/15/89. Problem areas are indicated by a (✓) in the columns with the heading "Difference Unacceptable"

Reference Sample = KCC 20, SERIES 24, PKSL6, 8FV4

| ANALYSIS | RESEARCH | | MACON | | DEVELOPMENT CENTER | | WINSTON SALEM | | Difference Unacceptable | | | |
|------------------------------------|----------|------|-------|------|--------------------|-------|---------------|-----|-------------------------|----|----|-----|
| | X | S | X | S | X | S | X | S | R* | M* | DC | WS* |
| Propylene Glycol (Cross-check Cig) | 1.22 | .02 | 1.29 | .01 | (1) | (1) | (1) | (1) | | | | |
| Glycerin (Cross-check Cig) | 1.93 | .08 | 1.94 | .03 | (1) | (1) | (1) | (1) | | | | |
| Propylene Glycol (20 mg solution) | 19.87 | .13 | 19.98 | .12 | (1) | (1) | (1) | (1) | | | | |
| Glycerin (20 mg solution) | 20.25 | .57 | 19.82 | .50 | (1) | (1) | (1) | (1) | | | | |
| Menthol | .59 | .01 | .61 | .01 | (1) | (1) | (1) | (1) | | ✓ | | |
| Pressure Drop | (2) | (2) | 6.5 | .13 | (1) | (1) | (1) | (1) | | | | |
| Ventilation | (2) | (2) | 35.1 | .74 | 35.7 | 2.43 | (1) | (1) | | | | |
| Ends Stability | 2.1 | .32 | 2.9 | .31 | (1) | (1) | (1) | (1) | | | | |
| Gross Weight | 997 | 8.05 | 1003 | 6.05 | (1) | (1) | (1) | (1) | | | | |
| Non-Tab. Weight | (1) | (1) | 2.64 | 1.62 | (1) | (1) | (1) | (1) | | | | |
| Oven Moisture | 15.43 | .08 | 15.25 | .10 | 15.44 | .15 | 15.36 | .41 | | | | |
| Circumference | (2) | (2) | 24.96 | .01 | 24.94 | .03 | (1) | (1) | | | | |
| Goal Retention | 55 | 2.18 | (1) | (1) | (1) | (1) | (1) | (1) | | | | |
| Cigarette Moisture | 13.67 | .06 | 13.59 | .13 | (1) | (1) | (1) | (1) | | | | |
| Fill-Val. (as-is) | 7.85 | .03 | 7.78 | .04 | (1) | (1) | (1) | (1) | | | | |
| Fill-Val. (correc.) | 6.79 | .17 | 6.78 | .07 | (1) | (1) | (1) | (1) | | | | |
| Fill-Val. (moisture) | 11.89 | .25 | 11.82 | .09 | (1) | (1) | (1) | (1) | | | | |
| Pack Leak Detector | 75 | 5.80 | (1) | (1) | 75 | 14.62 | (1) | (1) | | | | |
| Menthol (10 mg solution) | 10.05 | .03 | 9.99 | .05 | (1) | (1) | (1) | (1) | | | | |

* R = Research M = Macon D.C. = Development Center WS = Winston-Salem

COMMENTS: (1) = Analysis not performed routinely.
 (2) = NO DATA AVAILABLE
 (3) = METHOD UNDER INVESTIGATION

DATA

620011555

E6

BROWN & WILLIAMSON TOBACCO CORPORATIONSTANDARD INSPECTION PROCEDURE

TITLE: OUTGOING CIGARETTE QUALITY AUDIT
DEPARTMENT: DEVELOPMENT CENTER - QUALITY ASSURANCE
BRANCH: DEVELOPMENT CENTER

INTRODUCTION:

Product quality auditing is necessary to determine if the product is acceptable for use and to determine how well on a long-term basis product quality is meeting specified quality goals. This audit will consist of an inspection of two packages of cigarettes taken from each tray of each sample produced. Both the packages and the cigarettes will be inspected for defects and imperfections. Defects and imperfections are defined as:

Defect - that which renders the packaging or cigarettes unfit for the use for which they were intended and/or which projects an obvious lack of quality to the consumer.

Imperfection - that substandard condition which deviates from specifications but not to the degree that would render the packaging or cigarettes defective.

INSPECTION PROCEDURE:

1. The inspector will open each package examining each of the wrapping materials and then the cigarettes.
2. As the inspector conducts his/her inspection, he/she will record defects found on an Outgoing Quality Audit Form. A copy of the Outgoing Quality Audit Form is attached.
3. If a significant number of defects or imperfections are found, the supervisor in charge will be notified immediately.
4. The inspector will be guided by the following descriptions to determine whether a wrapping material and/or cigarette fault is a defect or imperfection.

620011556

STANDARD INSPECTION PROCEDURE
OUTGOING CIGARETTE QUALITY AUDIT

INSPECTION PROCEDURE: (Continued)

5. Package Defects

(a) Label

- (1) Incorrect Label
- (2) Wrong Code Number or Printing
- (3) Tears
- (4) Dirty
- (5) Ink Smears
- (6) Vertical Seam Position Out of Spec (1/8" max)
- (7) Top of Label to Top of Foil Out of Spec (1/16" max.)
- (8) Insufficient Bonding (fiber tear necessary)
- (7) Improper Tucks and Folds on Package Bottom

(b) Foil

- (1) Off Color
- (2) Wrong Foil
- (3) Improper Tucks and Folds (cigarettes exposed)

(c) Tear Tape

- (1) Wrong Tear Tape
- (2) Incomplete (does not encircle pack)
- (3) Not Adhered to film
- (4) Incorrect Positioning (must be 3/16" \pm 1/16" below pack top)

620011557

STANDARD INSPECTION PROCEDURE
OUTGOING CIGARETTE QUALITY AUDIT

INSPECTION PROCEDURE:

5. Package Defects (Continued)

(d) Film

- (1) Missing
- (2) Melted Areas
- (3) Too Tight (wrinkles and/or creases pack)
- (4) Improperly Sealed (any part of seams unsealed)

(e) Closures

- (1) Incorrect or Missing
- (2) Dirty
- (3) Ink Smears
- (4) Incorrect Position (must be centered $\pm 3/32"$)

6. Package Imperfections

(a) Label

- (1) Any notch-out at pack top or "tail on pack bottom which is more than 1/16" wide.
- (2) Vertical Seam Out of Position (less than 1/8")

(b) Foil

- (1) Improper Folds (cigarettes not exposed)
- (2) Wrinkles or Creases

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STANDARD INSPECTION PROCEDURE
OUTGOING CIGARETTE QUALITY AUDIT

INSPECTION PROCEDURE:

6. Package Imperfections (Continued)

(c) Tear Tape

Short or No Pull Tab

(d) Film

- (1) Too Loose (gives baggy effect)
- (2) Incorrect Folds (which are completely sealed)

(e) Closures

Incorrect Position (less than 3/32" off center)

7. Missing, broken, wrong brand, and/or wrong styles of cigarettes in package is always a defect.

8. Cigarette Defects

(a) Loose End/Void

Insufficient tobacco in the end or any place within the cigarette

(b) Appearance

1. Smears, Spots, Dirt, Flavoring, Lubricant
2. Wrong Code Number
3. Mashed or Crushed
4. Angled Cut (± 1 mm either end)
5. Rough Cut on Filters

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STANDARD INSPECTION PROCEDURE
OUTGOING CIGARETTE QUALITY AUDIT

INSPECTION PROCEDURE:

8. Cigarette Defects (Continued)

(c) Torn/Holes

Any holes or tears for any reason in the cigarette paper

(d) Seams

Any Opening in the seam

(e) Tipping Wrap

(1) Incorrect Tipping

(2) Recessed Filter

(3) Cork Wrap "A" - Any exposure of the cigarette paper or
plug wrap because of poor
tipping-to-tipping wrap or bonding

(4) Long and Short - Any tipping in excess of ± 1 mm

(d) Loose Tips

(1) Missing Filter

(2) Tip fell off or can be pulled off because of lack of
adhesive or mismatch of filter and cigarette circumference

(3) Air Pockets - Small air space between cigarette paper
and tipping paper

9. Cigarette Imperfections

(a) Appearance

(1) Light Print

(2) Rough Cut on Cigarette End

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STANDARD INSPECTION PROCEDURE
OUTGOING CIGARETTE QUALITY AUDIT

INSPECTION PROCEDURE:

9. Cigarette Imperfections (Continued)

(b) Seam

- (1) Slight Scorch Marks
- (2) Raw Seams - More than half of seam length not bonded but without any open areas

(c) Tipping Wrap

- (1) Lighter and/or Darker than Standard
- (2) Long or Short - Less than ± 1 mm
- (3) Cork Wrap "B" - Tipping not completely bonded to itself

10. In addition to recording the number of defects found, the inspector will also fill in the following information on the Outgoing Quality Audit Form:

- (a) His/Her Initials
- (b) Date of Inspection
- (c) Cigarette Code Number
- (d) Number of Trays Sampled Per Code Number
- (e) Number of Packs Inspected Per Code Number
- (f) Total Pack Defects
- (g) Total Cigarette Defects
- (h) Total of Pack + Cigarette Defects

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STANDARD INSPECTION PROCEDURE
OUTGOING CIGARETTE QUALITY AUDIT

INSPECTION PROCEDURE:

11. Weekly, the completed Outgoing Quality Audit form will be delivered to the Fabrication Supervisor who will convert the defects to defects/carton and record this information on graphs hanging in the Fabrication Room.
12. Targets are:
 - (a) Package - 2.0 or less per carton
 - (b) Cigarette - 0.5 or less per carton
 - (c) Total Defective - 2.5 or less per carton

0490M
5/20/89
Attachment

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BROWN & WILLIAMSON TOBACCO CORPORATION
OUTGOING QUALITY AUDIT

| INSPECTOR INITIALS | | BADGE NO. | | DATE | | SHIFT | | | | | | |
|--------------------|----------------------|--------------|-------------|--------------|-------------|--------------|-------------|--------------|-------------|--------------|---|-------------|
| TYPE INSPECTION | | Fir & Ln/Gp. | | Fir & Ln/Gp. | | Fir & Ln/Gp. | | Fir & Ln/Gp. | | Fir & Ln/Gp. | | TOTAL COUNT |
| Y-Line | Case | Brand | Brand | Brand | Brand | Brand | Brand | Brand | Brand | Brand | | |
| | | Cnt. Mch. # | Cnt. Mch. # | Cnt. Mch. # | Cnt. Mch. # | Cnt. Mch. # | Cnt. Mch. # | Cnt. Mch. # | Cnt. Mch. # | Cnt. Mch. # | | |
| BOXER NO. | | | | | | | | | | | | |
| CARTONS | 1 OVERWRAP | | | | | | | | | | | |
| | 3 CODES | | | | | | | | | | | |
| | 5 APPEARANCE | | | | | | | | | | | |
| | 6 SEALS | | | | | | | | | | | |
| | 8 INCORRECT ASSEMBLY | | | | | | | | | | | |
| SUB-TOTAL | | | | | | | | | | | | |
| PACKER NO. | | / | / | / | / | / | / | / | / | / | / | |
| CAGES | 15 DAMAGED | | | | | | | | | | | |
| | 17 TEAR TAPE | | | | | | | | | | | |
| | 19 FILM | | | | | | | | | | | |
| | 20 CLOSURE | | | | | | | | | | | |
| | 21 COUPONS | | | | | | | | | | | |
| SUB-TOTAL | | | | | | | | | | | | |
| MAKER NO. | | / | / | / | / | / | / | / | / | / | / | |
| CIGARETTES | 35 LOOSE ENDS / VOID | | | | | | | | | | | |
| | 36 APPEARANCE | | | | | | | | | | | |
| | 38 TORN/HOLES | | | | | | | | | | | |
| | 39 SEAMS (OPEN) | | | | | | | | | | | |
| | 41 TIPPING LENGTH | | | | | | | | | | | |
| 42 TIPPING WRAP | | | | | | | | | | | | |
| 43 LOOSE TIPS | | | | | | | | | | | | |
| 44 AIR POCKETS | | | | | | | | | | | | |
| SUB-TOTAL | | | | | | | | | | | | |
| TOTAL COUNT | | | | | | | | | | | | |

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