# ENVIRQLOGIX

# QualiPlate<sup>™</sup> Kit for Roundup Ready<sup>®</sup> Corn Event 603 and Cotton

Catalog Number AP 010

# **Intended Use**

The EnviroLogix QualiPlate Kit for Roundup Ready Corn Event 603 and Cotton is designed for the qualitative laboratory detection of CP4 EPSPS enzyme (CP4) coded for by the Roundup Ready gene in Corn Event 603 grain, leaf, or seed, and cotton leaf and single seed. For the detection of Roundup Ready in soy bulk grain or soy flour, please refer to the Product Application Guide (Page 9). This test will detect the CP4 enzyme found in 0.1% Event 603 corn (one seed in 1000) and requires 1 hour to run.

**NOTE:** In corn, this kit can ONLY be used to detect RR Corn Event 603. It will NOT detect RR corn with the Event known as GA21.

# How the Test Works

The EnviroLogix QualiPlate Kit for Roundup Ready Corn Event 603 and Cotton is a "sandwich" Enzyme-Linked ImmunoSorbent Assay (ELISA).

In the test, corn or cotton sample extracts are added to test wells coated with antibodies raised against CP4. Any CP4 present in the sample extract binds to the antibodies and is then detected by addition of enzyme (horseradish peroxidase)-labeled CP4 antibody.

After a simple wash step, the results of the assay are visualized with a color development step. Color development increases with increasing CP4 sample concentration.

*Lighter color = Low concentration Darker color = High concentration* 

### How the Kit Performs

The EnviroLogix QualiPlate Kit for Roundup Ready Corn Event 603 and Cotton is a strictly qualitative (yes/no) assay. Samples are interpreted in comparison with Positive and Negative Controls. Instructions for interpreting results based upon these controls start on page 6.

### Precision

CP4-fortified control solutions were repetitively analyzed in different assays on different days (inter-assay). The fortification levels used are roughly equivalent to 0.15% and 0.4% Event 603 corn, respectively. The data is expressed as % CV for both the optical density absorbance (OD) and the Positive Control Ratio (OD of sample divided by the OD of the Positive Control ground corn).

### **Error** Rate

### Event 603 Corn

Validation of this QualiPlate Kit for corn involved in-house and beta-site (non-EnviroLogix users) components. Five different in-house operators and five different beta-sites participated. Each corn sample extract was tested in three different Plate Kit manufacturing lots, generating 3 data points per corn sample.

### Highlights:

- Will detect 0.1% (1 seed in 1000) of Event 603 corn
- Test Roundup Ready corn or cotton seed lot purity in 1 hour

#### Contents of Kit:

- 1 antibody-coated 96-well plate
- Roundup Ready Enzyme Conjugate
- 1 packet of Buffer Salts
- Substrate
- Stop Solution

|       | <b>OD</b><br>(%CV) | Pos. Ctl.<br>Ratio<br>(%CV) |
|-------|--------------------|-----------------------------|
| ]     | Inter-Assay        | n=33                        |
| 0.15% | 23.9%              | 21.1%                       |
| 0.4%  | 22.1%              | 20.8%                       |

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1000-kernel seed/grain samples

- 2 false positive results out of 378 non-Corn Event 603 data points, for a best estimate false positive rate of 0.53%.
- 2 false negative results out of 360 0.1% Corn Event 603 data points, for a best estimate false negative rate of 0.55%.

Single seed samples

- 0 false positive results out of 387 non-Corn Event 603 seed data points, for a best estimate 0% false positive rate.
- 0 false negative results out of 366 Corn Event 603 seed data points, for a best estimate 0% false negative rate.

Single leaf punch samples

- 0 false positive results out of 378 non-Corn Event 603 leaf data points, for a best estimate 0% false positive rate.
- 0 false negative results out of 378 Corn Event 603 leaf data points, for a best estimate 0% false negative rate.

**IMPORTANT NOTE:** The presence of Roundup Ready <u>Soybean</u> in a corn sample WILL cause a positive result in this assay.

#### Roundup Ready Cotton

Validation of this QualiPlate Kit for cotton involved in-house and beta-site (non-EnviroLogix users) components. Four different in-house operators and five different beta-sites participated. Each cotton sample extract was tested in three different Plate Kit manufacturing lots, generating 3 data points per cotton sample.

#### Single seed samples

- 0 false positive results out of 591 non-Roundup Ready cotton seed data points, for a best estimate 0% false positive rate.
- 7 false negative results out of 555 Roundup Ready cotton seed data points, for a best estimate 1.3 % false negative rate.

#### Single leaf punch samples

- 13 false positive results out of 1593 non-Roundup Ready cotton leaf data points, for a best estimate 0.8 % false positive rate.
- 0 false negative results out of 567 Roundup Ready cotton leaf data points, for a best estimate 0% false negative rate.

# **Items Not Provided**

- distilled or deionized water for preparing Wash/Extraction Buffers
- glass bottles or flask plus graduated cylinder with 1 liter capacity for preparation and storage of Wash/Extraction Buffer
- Tween® 20 (Sigma cat# P 1379, or equivalent), Sodium tetraborate (Borax, Sigma cat# S 9640, or equivalent, optional) for cotton sample extraction
- **Positive Control**. It is recommended that the user prepare a known positive control sample to run in each assay. A ground corn Positive Control may be purchased through EnviroLogix (CON-105, Part #10764).
- Waring laboratory blender (model 31BL91 or equivalent), glass jar adapter (Eberbach # E8495) and 32 oz. glass Mason jars for ground corn samples
- snap-cap tubes and pestles for extraction of leaf samples (EnviroLogix Cat No. ACC 002 / Part#11213, 100/package)
- centrifuge capable of 5000 x g (optional)

- disposable tip, adjustable air-displacement pipettes which will measure 50 and 100 microliters (μL)
- marking pen (indelible)
- tape or Parafilm®
- timer
- microtiter ELISA plate reader
- wash bottle, or microtiter plate or strip washer
- multi-channel pipette that will measure 50 and 100 µL
- racked dilution tubes for loading samples into the plate with a multi-channel pipette, or the equivalent
- orbital plate shaker (optional)

# **Preparation of Solutions**

#### Wash/Extraction Buffer:

Add the contents of the packet of **Buffer Salts** to 1 liter of distilled or deionized water and stir to dissolve. Store refrigerated when not in use; allow to come to room temperature prior to assay. If more Wash/Extraction buffer is needed, order item # P-3563 from Sigma Chemical Co. (St. Louis, MO), or prepare the equivalent. Use this buffer for the wash step of the assay, and to extract all corn samples.

#### **Cotton Extraction Buffers:**

Cotton leaf and seed samples may be extracted with either of the following buffers:

<u>PBS-0.55% Tween:</u> Add 0.5 mL Tween 20 to 100 mL Wash/Extraction Buffer. . Store refrigerated when not in use; allow to come to room temperature prior to assay.

<u>Borate-Tween:</u> Prepare 0.1 M sodium tetraborate/0.5% Tween 20 (38.1 grams per liter of de-ionized water plus 5 mL Tween 20). Adjust pH to 7.5. Store refrigerated when not in use; allow to come to room temperature prior to assay.

# **Sample Preparation**

Note: It is recommended that the user prepare known negative and positive seed or leaf samples to be run in every assay as controls.

#### Sampling Ground Corn Grain/Seed

This protocol requires that a small sample (20 to 50 grams) be analyzed. It is essential that this sample be well mixed and representative of the larger bulk. The test will detect 0.1% Event 603 corn (one positive kernel in a sample of 1000 kernels).

**NOTE:** Thorough mixing of the bulk grain sample and determination of an appropriate sampling plan are critical to the results of this testing, and are the responsibility of the user of this test kit. The USDA/GIPSA has prepared several guidance documents to address the issues involved in obtaining representative grain samples from static lots - such as trucks, barges, and railcars - and for taking samples from grain streams.

Sampling plans should be chosen that best meet the needs of both the buyer and seller in terms of acceptable risks. Increasing the number of kernels in the sample and taking multiple samples will increase the likelihood of obtaining representative samples, and maximize the probability of detecting any contamination in the grain lot. For further information on USDA/GIPSA guidelines for obtaining representative samples and assessing detection probabilities for biotech grain, see the websites listed to the left.



Prepare wash buffer and grain extraction solutions

#### USDA Websites

- www.gipsa.usda.gov/fgis/ handbook/gihbk1\_inspec.aspx
   USDA Grain Inspection Handbook, Book 1, Grain Sampling.
- www.gipsa.usda.gov/fgis/ biotech/sample2.htm -Guidance document entitled Sampling for the Detection of Biotech Grains.
- www.gipsa.usda.gov/fgis/ biotech/sample1.htm - Practical Application of Sampling for the Detection of Biotech Grains.
- www.gipsa.usda.gov/fgis/ biotech/samplingplan1.xls -This website provides a simple to use Sample Planner (29K Excel Spreadsheet). The planner allows you to enter different assumptions in terms of sample size, number of samples, acceptable quality level and to determine the probability of accepting lots with given concentration levels. It also plots the probabilities in graph form for easy interpretation. Specific data can be saved for documentation and future analyses.



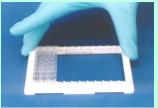
Allow all reagents to reach room temperature before beginning



Remove unneeded strips



Add controls and sample extracts



Mix plate



Incubate

### Grind and Extract the Samples

#### Ground Corn Grain/Seed:

Once representative samples have been obtained from a truck or container, they can be reduced in size using a splitter and uniformly ground and mixed. The finer the grind, the faster and more efficient the extraction.

- 1. For 1000 kernel samples, grind in a 32 ounce "Mason" jar on a blender at high speed for 1 minute. Shake jar to mix, then repeat the grinding a second time. Thoroughly clean the grinding equipment between samples to prevent cross-contamination.
- 2. Weigh at least 20 grams of ground corn sample into a jar or cup.
- 3. Add 50 mL of Wash/Extraction Buffer to each 20 gram sample. For all other grain sample sizes, add Wash/Extraction Buffer at the rate of 2.5 mL per gram of grain. Cap and shake vigorously by hand or vortex for 20-30 seconds. Let stand at room temperature for 1 hour to extract. Mix again at the end of the hour.
- 4. For best results, clarify the extracts by centrifuging at 5000 x g for 5 minutes. Alternatively, allow them to settle out for <u>at least</u> 10 minutes. Insert a pipette tip below any floating lipid layer and above the pellet to remove the clarified sample. Dispensing particles into the test plate can cause false positive results.

#### Single Corn or Cotton Seed Samples:

- 1. Crush seeds: Seeds may be placed in a resealable plastic bag and smashed with a hammer, then transferred to a tube; or, a seed crusher/48-well plate combination may be used (for example Hypure #HSC-100, PerkinElmer, Norton, OH, with Costar plate #3548, Corning Life Sciences, Acton, MA, or equivalent). Check to be sure that all seeds have been crushed. Take extreme care not to cross-contaminate between seed samples. If using the seed crusher, dip the crushing prongs in clean water, then shake off the excess prior to crushing. After crushing, slide a piece of paper between the plate and the crushing prongs as you remove them from the wells. These procedures help to prevent seed particles from jumping from one well to the next, reducing the risk of cross-contamination.
- 2. Add 1 mL of Wash/Extraction Buffer to each crushed corn seed; add 1 mL of PBS-0.55% Tween or Borate-Tween to each crushed cotton seed. Mix for at least 30 seconds, then allow particles to settle. Dispensing particles into the test plate can cause false positive results.

#### Single Corn or Cotton Leaf Punch Samples:

- 1. Take a single leaf punch of approximately 5 millimeters diameter, using a microtube cap or a paper punch. Mash the leaf tissue with a pestle matched to the microtube, or with a disposable pipette tip, or a Hypure cutter (HCT-200, PerkinElmer, Norton, OH) in a 96-well plate (Costar #3370, Corning Life Sciences, Acton, MA, or equivalent).
- 2. Add 0.25 mL of Wash/Extraction Buffer per corn leaf punch; add 0.25 mL of PBS-0.55% Tween or Borate-Tween to each cotton leaf punch. Mix for at least 30 seconds, then allow particles to settle. Take extreme care not to cross-contaminate between leaf samples. Dispensing particles into the test plate can cause false positive results.

# How to Run the Assay

- Read all of these instructions before running the kit.
- Allow all reagents to reach room temperature before beginning (at least 30 minutes with un-boxed plates and reagents at room temperature do not remove plate from bag with desiccant until it has warmed up).

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Bottle Wash method



Strip Plate Wash option



Complete protocol and add Stop Solution



Read plates in a Plate Reader within 30 minutes of the addition of Stop Solution.

- Organize all Control and sample extracts, and pipettes so that Step 1 can be performed in 15 minutes or less. If more than four strips are to be run at one time, the 15 minutes is likely to be exceeded, and the use of a multi-channel pipette is recommended (see "Note" below).
- If four or fewer strips are to be run, use a disposable-tip air-displacement pipette and a clean pipette tip to add Control(s) and sample extract to the wells. Conjugate, Substrate, and Stop Solution may be added in the same manner; alternatively, use a repeating pipette with a disposable tip on the end of the Combitip for these three reagents.
- If fewer than all twelve strips are used, reseal the unneeded strips and the desiccant in the foil bag provided, and refrigerate.
- Use the well identification markings on the plate frame to guide you when adding the samples and reagents. For this qualitative assay, duplicate wells of the Wash/Extraction Buffer Blank (BL), user-supplied Negative Control (NC) and Positive Control (PC), along with 90 sample extracts (S) in single wells may be run on one plate. (See the Qualitative Assay Example Plate Layout - Figure 1).

#### Procedure

 Add 50 μL of Roundup Ready Enzyme Conjugate to each well, followed immediately by 50 μL of Wash/Extraction Buffer Blank (BL), 50 μL of usersupplied Negative and Positive Controls (PC and NC) and 50 μL of each sample extract (S) to their respective wells, as shown in the Example Plate Layout (Figure 1).

**NOTE:** In order to minimize setup time it is strongly recommended that a multichannel pipette be used in steps 1, 5, and 7.

- 2. Thoroughly mix the contents of the wells by moving the plate in a rapid circular motion on the benchtop for a full 20-30 seconds. Be careful not to spill the contents!
- 3. Cover the wells with tape or Parafilm<sup>®</sup> to prevent evaporation and incubate at ambient temperature for **45 minutes**. If an orbital plate shaker is available, shake plate at 200 rpm.
- 4. After incubation, carefully remove the covering and vigorously shake the contents of the wells into a sink or other suitable container. Flood the wells completely with Wash/Extraction Buffer, then shake to empty. Repeat this wash step three times. Alternatively, perform these four washes (300  $\mu$ L/well) with a microtiter plate or strip washer. Slap the inverted plate on a paper towel to remove as much liquid as possible.
- 5. Add 100 µL of Substrate to each well.
- 6. Thoroughly mix the contents of the wells, as in step 2. Cover the wells with <u>new</u> tape or Parafilm and **incubate** for **15 minutes at ambient temperature**. Use orbital shaker if available.

#### CAUTION: Stop Solution is 1.0N Hydrochloric acid. Handle carefully.

7. Add 100  $\mu$ L of Stop Solution to each well and mix thoroughly. This will turn the well contents yellow.

# How to Interpret the Results

#### Spectrophotometric Measurement

1. Set the wavelength of the microtiter plate reader to 450 nanometers (nm). (If it has dual wavelength capability, use 600, 630 or 650 nm as the reference wavelength.)

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2. Set the plate reader to blank on the Wash/Extraction Buffer Blank wells (this should automatically subtract the mean optical density (OD) of the Blank wells from each control and sample OD). If the reader cannot do this, it must be done manually.

#### General test criteria:

The mean OD of the BLANK wells should not exceed 0.2.

The mean, blank-subtracted OD of the Positive Control wells should be at least 0.2 and at least 3x greater than the mean, blank-subtracted OD of the Negative Control wells.

The coefficient of variance (%CV) between the duplicate Positive Control wells should not exceed 15%:

%CV =<u>std. deviation of OD's</u> x 100 mean Pos.Ctl. OD

If the results of an assay fail to meet these criteria, consult EnviroLogix' Technical Service for suggestions on improving the test when you repeat the assay.

### **Calculate the Positive Control Ratio**

Divide the OD of each sample extract by the mean OD of the Positive Control ground corn extract wells. This number is the "Positive Control Ratio".

#### Interpret the Qualitative Results

#### Ground corn samples

If the Positive Control Ratio calculated for a sample is less than 0.25, the ground corn contains less than 0.1% Event 603 corn.

If the Positive Control Ratio of a sample is greater than or equal to 0.25, the sample contains 0.1% or greater Event 603 corn.

**NOTE:** Ground corn samples containing more than 25% Event 603 corn may show decreasing OD's with increasing concentration. However, the OD's will be much greater than that of a 0.1% Event 603 sample. This test is to be used qualitatively only, with yes/no results at 0.1% Event 603 corn. For information on testing at different cutoff levels, please contact EnviroLogix' Technical Service.

#### Single Corn or Cotton Leaf and Seed samples:

If the Positive Control Ratio calculated for a sample is less than 1.0, the sample is not Event 603 corn or Roundup Ready cotton.

If the Positive Control Ratio of a sample is greater than or equal to 1.0, the sample is Event 603 corn or Roundup Ready cotton.

Leaf and seed samples are by their nature either 100% positive or 100% negative. Any low level positive results from single seed or leaf samples must be due to either some form of sample cross-contamination (stray particles or dust from Event 603 corn or cotton, leaf residue on leaf punch, etc.) or can be caused by transfer of particulate matter from leaf or seed extracts into the assay wells. If there is any question of the latter occurring, re-extraction and re-testing is recommended.

|   | 1          | 2          | 3           | 4   | 5           | 6   | 7   | 8   | 9   | 10          | 11          | 12          |
|---|------------|------------|-------------|-----|-------------|-----|-----|-----|-----|-------------|-------------|-------------|
| Α | BL         | <b>S</b> 6 | S14         | S22 | <b>S</b> 30 | S38 | S46 | S54 | S62 | <b>S</b> 70 | S78         | S86         |
| В | NC         | <b>S</b> 7 | S15         | S23 | S31         | S39 | S47 | S55 | S63 | S71         | S79         | S87         |
| С | PC         | <b>S</b> 8 | S16         | S24 | S32         | S40 | S48 | S56 | S64 | S72         | <b>S</b> 80 | S88         |
| D | <b>S</b> 1 | <b>S</b> 9 | S17         | S25 | S33         | S41 | S49 | S57 | S65 | S73         | <b>S</b> 81 | <b>S</b> 89 |
| Е | S2         | S10        | <b>S</b> 18 | S26 | S34         | S42 | S50 | S58 | S66 | S74         | S82         | <b>S</b> 90 |
| F | <b>S</b> 3 | S11        | S19         | S27 | S35         | S43 | S51 | S59 | S67 | S75         | S83         | BL          |
| G | S4         | S12        | S20         | S28 | S36         | S44 | S52 | S60 | S68 | S76         | S84         | NC          |
| Η | S5         | S13        | S21         | S29 | S37         | S45 | S53 | S61 | S69 | S77         | S85         | PC          |

Figure 1. Example of a typical Qualitative assay setup.

# **Precautions and Notes**

- Store all QualiPlate Kit components at 4°C to 8°C (39°F to 46°F) when not in use.
- Do not expose QualiPlate Kit components to temperatures greater than 37°C (99°F) or less than 2°C (36°F).
- Allow all reagents to reach ambient temperature (18°C to 27°C or 64°F to 81°F) before use.
- Do not use kit components after the expiration date.
- Do not use reagents or plates from one QualiPlate Kit with reagents or plates from a different QualiPlate Kit.
- Do not expose Substrate to sunlight during pipetting or while incubating in the test wells.
- The assay has been optimized to be used with the protocol provided in the kit. Deviation from this protocol may invalidate the results of the test.
- As with all tests, it is recommended that results be confirmed by an alternate method when necessary.
- Observe any applicable regulations when disposing of samples and kit reagents.
- Use caution to prevent sample-to-sample cross-contamination with samples, fluids, or disposables.



### For Technical Support Contact Us At:

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This Limited Warranty states the entire obligation of EnviroLogix with respect to the Products. If any part of this Limited Warranty is determined to be void or illegal, the remainder shall remain in full force and effect.

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EnviroLogix has developed this kit using proprietary reagents as well as reagents licensed from the Monsanto Company.



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|   | e measures   |
|   |  |
|   | Prevent further leakage or spillage if safe to do so. Do not let product enter drains.   |
|   | Discharge to the environment must be avoided.<br>annent and<br>Pick up and arrange disposal without creating dust. Sweep up and shovel. Keep in  |
|   | suitable closed containers for disposal  |
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| 2.3. Additional information         Description           2.3. Additional information         2.3. application in the product of the p   | clothing. Prevent formation of dust.   |
| Statistics       Provide and the second  | Keep containers closed, store in a dry, well ventilated space.   |
| 323 More Product Order       Product Order         123 More Product Order       Image: Comparison of the product of the produc   | Apart from the uses mentioned in section 1.2, no other end uses are stipulated.  |
| Abardwa Composition   handwa   | spersonal protection   |
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| <ul> <li>La Mort ingriteria orginaria and first, bala constructions and advect in strategies of a set of a</li></ul> | and good adorsatory practices, wash and dry hands. The selected protective gooves n<br>to satisfy the specifications of EU Directive 89/686/EEC and the standard EN 374<br>derived from it.  |
| International days dia         Non:           Jahanderi and ya mukatika melakatika dia daya dia trainmani is regared         Joho pendati mangina dia daya dia trainmani is regared           SSS:         Managatika dia daya dia trainmani is regared         Joho pendati mangina dia dia daya dia trainmani is regared           SSS:         Managatika dia daya dia dia daya dia dia dia dia dia dia dia dia dia di   | Appropriate respiratory protection should be determined according to local condition   |
| and special treatment needed:       No special treatment is regard         SDS:       Meneroystin Wash Buffer       Revision: 13 February, 2015       Page 1 of 4         SDS:       Meneroystin Wash Buffer       Revision: 13 February, 2015       Page 1 of 4         SUBTION 2- Trybeic and chemical properties       Notice provides       Revision: 13 February, 2015       Page 1 of 4         SUBTION 2- Trybeic and chemical properties       Notice provides       Revision: 13 February, 2015       Page 1 of 4         SUBTION 2- Trybeic and chemical properties       Notice provides       Revision: 13 February, 2015       Page 1 of 4         SUBTION 2- Trybeic and the formating profit:       7.4       Revision: 13 February, 2015       Page 1 of 4         SUBTION 2- Trybeic and the formating profit:       7.4       Revision: 13 February, 2015       Page 1 of 4         SUBTION 2- Trybeic and the formating profit:       7.4       Revision: 13 February, 2015       Page 2 of 4         SUBTION 2- Trybeic and the formating profit:       7.4       Revision: 13 February, 2015       Page 2 of 4         SUBTION 2- Trybeic and the formating profit:       7.4       Revision: 13 February, 2015       Page 2 of 4         SUBTION 2- Trybeic and the formating profit:       No data available       Page 2 of 4       SUB 2 of 50000         SUBTION 1- Strice and the formating profit:       No data  | using risk analysis protocoles. An approved disposable air purifying particulate respin<br>may be used as a backup to engineering controls. Always use reapirators and compo-<br>tested and approved under appropriate government standards such as NIOSH (US) o |
| SDS:       Managestan Wash Buffer       B2 Extremental controls.         SDS:       Managestan Wash Buffer       SDS:       Managestan Wash Buffer         SDS:       Managestan Wash Buffer       SDS:       SDS:       Managestan Wash Buffer         SDS:       Managestan Wash Buffer       SDS:       SDS:       SDS:       SDS:<  | CEN (EU).  |
| SSE: Menesysta Wah Buffer Berner Bern      | Use body protection relative to its type and amount of material being handled  |
| Structures an back physical and channel properties         9. Appendix         9. Appendix <t< th=""><th>Sweep or wipe up spills, do not allow into sewers or drains</th></t<>  | Sweep or wipe up spills, do not allow into sewers or drains  |
| a) Appendix and a set of the set       | GPHIONS<br>in accordance with Local, State and Federal regulations. Contact a licensed professional waste dispose  |
| a) definition of the second         |  |
| 0) Boling priori       No data available         1) Table priori       No data available         1) Deperform frammability couplosite       No data available         1) Upper form frammability couplosite       No data available         1) Decomposition transport hazards       No data available         2) Decomposition transport hazards       No data available         2) Ober transmine       No data available         10 State Kegatalites weighter       No data available         10 State Kegatalites weighter       No data   |  |
| <ul> <li>1) Parametrik (solida senilable</li> <li>1) Contain senil</li></ul>  | OT, ADR, ADN, IMDG, IATA : Not dangerous goods.  |
| The second mathematical subjects       No data available         10 Varge register       No data available         11 Statisty house register       No data available         12 Obdition reproducts       No data available         13 Statisty reproducts       No data available         13 Cherkind information       No data available         13 Cherkind information register       No data available         13 Cherkind information       No data available         13 Cherkind information       No data available         13 Cherinder holds for comparitient register   | Not applicable.<br>IMDG. IATA): Not applicable.  |
| <ul> <li>1) Vacodity No data available in plantary of the source of</li></ul> | Not applicable.<br>Not applicable.   |
| <ul> <li>O) Particles Cefficient e-Chandware: No data available</li> <li>O) And spinot imperature: No data available</li> <li>O) And spinot imperature: No data available</li> <li>O) And spinot imperature: No data available</li> <li>Demond: No data available</li> <li>Sanc crussion/intator: No data available</li> <li>And spinot imperature: No data available</li> <li>Section VI 1: Foolegical information</li> <li>No data available</li> <li>Carringenity: No data available</li> <li>Carringen</li></ul>  | to Annex II of MARPOL73/78 Not applicable.   |
| 1) Decomposition temperature:       No data available         0) Visconty:       No data available         0) Coldinar properties:       No data available         0) Zolavity:       No data available         10.1 Kestry:       No data available         10.2 Cheroid a Stability:       No data available         10.3 Rescription:       No data available         10.4 Rescription:       No data available         10.5 Rescription:       No data available         10.6 Rescription:       No data available         10.7 Rescription:       No data available         10.8 Rescription:       No data available         Stription:       No data available         Stription:       No data available         Striptin   | majjon   |
| <ul> <li>a) Bagdonie properties: No data available</li> <li>b) Oddara properties: No data available</li> <li>3.2 Other information</li> <li>b) Charling appropriate</li> <li>b) Adata available</li> <li>c) Adata properties:</li> <li>c) Adata properties</li></ul>  | ntal   |
| 9.2 Other information     No further relevant information available.       SECTION 10. Stability and reactivity       10.3 Condition information       10.3 Condition information       10.3 Condition information       10.4 Conditions to reactivity:       10.5 Condition information       10.6 Conditions to reactivity:       10.7 Exclodingical information       10.8 Conditions to reactivity:       10.9 Conditions       10.1 Conditions to reactivity:       10.2 Conditions to reactivity:       10.3 Conditions to reactivity:       10.4 Conditions to reactivity:       10.5 Conditions to reactivity:       10.6 Conditions to reactivity:       10.6 Atta available       11.5 Concludent information       12.5 Construct information       12.6 Conditions to reactivity:       12.6 Conditions to reactivity:       12.7 Concludent information:       12.8 Conditions to reactivity:       12.8 Conditions to reactivity:       12.9 Conditions to reactivity:       12.1 Concludent information:       12.1 Construct information:    <  |  |
| SECTION 10. Stability and reactivity     In Class Walking and reactivity     In Class Walking of Markowski (Markowski (   |  |
| Site TCON 11:       Toxical statility: and reactivity:       No data available       It State Regulations         B12 Density:       State Regulations       State Regulations       Masselitusets Regulations         B12 Density:       State Regulations       State Regulations       State Regulations         B12 Density:       No data available       State Regulations       State Regulations         B12 Density:       No data available       State Regulations       State Regulations         B13 Density:       No data available       State Regulations       State Regulations         State Regulations:       No data available       State Regulations       State Regulations         State Regulations:       No data available       State Regulations       State Regulations         State Regulation:       No data available       State Regulations       State Regulations         State Regulation:       No data available       State Regulations       State Regulations         Regulation:       No data available       State Regulations       State Regulations         Regulation:       No data available       State Regulations       State Regulations         State Regulation:       No data available       State Regulations       State Regulations         State Regulation:       No data available       <  | Not listed<br>Not listed   |
| 18.2 Chemical stability:       Stable under normalized storage conditions.         18.2 Chemical stability:       No data available.         18.4 Chemical stability:       No data available.         18.6 Tharardosa decomposition to avoid :       No data available.         State toxicity:       No data available.         Dermail:       No data available.         State toxicity:       No data available.         State toxicity:       No data available.         State toxicity:       No data available.         Mangenitory and toxicity for reproduction:       No data available.         State toxicity:       No data available.         Mangenitory and toxicity for reproduction:       No data available.         State TION 12: Production to this product at levels greater than 0.1 % is identified as probable.       Personal state of available.         12.1 Texicity:       No data available       This information:         12.1 Texicity:       No data available       This information:         12.2 Providence and degradability:       No data available       Elifo Degramment andif  | Disedium Hydrogenorthophosphate CAS No 7558-79-4 Rev Date: 2007-03-01  |
| Bits Theory of the requestion of the requestion of the requirement of the requestion of the requestion of the requirement of the requestion of the requestion of the requirement of the requestion of the requestion of the requirement of the requestion of the requestion of the requirement of the requestion of the r                       | Contains no chemicals known to cause cancer, birth defects, or reproductive har  |
| SKCTION 11. Toxicological information           Acta toxicity:         No data available           Irbitalion:         No data available           Dermail:         No data available           Star cortosint inform:         No data available           Star cortosint inform:         No data available           Reginatery or adsta construction:         No component of this product at levels greater than 0.1% is identified as probable, possible, or confirmed human carcinogen by TARC, ACGH, NTP, or OSHA           SECTION 12: Pedagleal Information:         No data available           12.1 Texkity         No data available           12.2 Providence and degradability:         No data available           12.3 It asketty in soil:         No data available           12.4 Abebility in soil:         No data available   | Not carried out  |
| Acute toxicity: No data available Acute toxicity: No data available Termat. No data available Termat. No data available Termat. No data available Sectors yor damp. Respiratory or skin sensitization: No data available Respiratory or skin sensitization: No data available Respiratory or skin sensitization: No data available Carcinspointy: No data available Respiratory or skin sensitization: Respiratory or skin s      |  |
| hthalafon, No data available Dermai: No data available Dermai: No data available Statu certorispentity Statu certorispentity No data available Statu certorispentity Statu certorispentity No data available Statu certorispentity Statu cer      |  |
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| Managemistry and cosicity for reproduction) No data available Cateronyemity: No component of this product at levels greater than 0.1 % is identified as probable, possible, or confirmed thanan earcinegent by LARC, ACCH, NTP, or OSUA. H412 Harmful to equate lift H412 Harmful to equat      | ion  |
| 1412     Harmful ko squarki lil       SKC HOM 12: Ecological Information     Hall       12.1 Taskity     No data svallable       12.1 Taskity     No data svallable       12.3 Taskity     No data svallable       12.3 Taskity in soli:     No data svallable  |  |
| 12.1 Texicity     No data available     Persist     Persist       12.2 Persistence and degradability:     No data available     relationability:       12.3 Bio accumulative potential:     No data available     EttS Department       12.4 Mobility in soil:     No data available     Evidence and degradability:  |  |
| 12.2 Persistence and degradability:     No data available     relationability       12.3 Bio accumulative potential:     No data available     EHS Department       21.4 Mobility in soil:     No data available     Evident Constraints  | with long lasting affects  |
| 12.1 Persistence and degradability:     No data available       12.3 Bio accumulative potential:     No data available       12.4 Mobility in soli:     No data available   | e revenue traveladas. Hauseure: Revival ante makes no representation of its accuracy or completeness   |
| 12.4 Mobility in soil: No data available  | e revenue traveladas. Hauseure: Revival ante makes no representation of its accuracy or completeness   |
|   | e revenue traveladas. Hauseure: Revival ante makes no representation of its accuracy or completeness   |
| 12.5 Results of r b1 and vr vb assessment. Not available as a chemical safety assessment, not required not conducted.   | e revenue traveladas. Hauseure: Revival ante makes no representation of its accuracy or completeness   |
| 12.6 Other adverse effects No data available  |  |
|   | e revenue traveledae. However, Revival anty makes no representation of its accuracy or completeness  |

# QualiPlate Kit for Roundup Ready Corn Event 603 and Cotton Page 10 of 13

|  | SECTION 1. Identification of the substa  | nce/mixture and of  | the company/undertaking   |   | 3.2   | TION 3. Compositi<br>Mixture   | on/informa   | tion on ing  | redients   |  |   |   |
|--|--|---|---|---|---|--|--|--|--|--|---|---|
|  | 1.1 Product identifier<br>Trade name:  | Stop Solu   | ition   |   |   | Aqueous solution 1   |  |  |  |  |   |   |
|  | Part number  | 10825 10  | 4<br>827, 10828, 11193, 11776 (XGI  | D007)   |   | Chemical name  |  | 222223023  | Classificat  | tion According to OSH  | A 29CFR 19  | 10.1200   |
|  | mixture and uses advised against applicati   | ion   | chemicals   |   |   | Hydrochloric acid  | 1-4 %  |  | Hazard Classif   | ification  | Н   | azard Code  |
|  | 1.3 Details of the supplier of the safety data she   | eet   |   | al Pkwy.  |   |  |  |  | May be Corrosive   | e to Metals  |   | H290  |
|  |  | Portland M<br>Phone: (20  | IE 04103, USA<br>(7) 797-0300   |   |   |  |  | 231-595-7  | Causes Skin Ir   | rritation  |   | H315  |
| <form></form>  | 1.4 Emergency telephone number:  |   |   |   |   |  |  |  | Causes Serious Ey  | ye Damage  |   | H318  |
|  |  | (201) 1971  | 0000 Feelinger Dervice  |   |   |  |  |  |  |  |   |   |
| <form>Under service of the service of th</form>   | 2.1 Classification of the substance or mixture   | 910.1200 Metal Co<br>Skin Irrit   | rrosive (Cat. 1) H290<br>ation (Cat 2) H315   |   |   |  |  |  |  |  |   |   |
| <form></form>  | 2.2 Label elements<br>Labeling according to OSHA 29CFR 1910.12   |   |   |   |   |  |  |  | In case of inhalation  | Remove to fresh air 11   | not breathing   | rrive artificial  |
|  | Thread all designed  |   |   |   |   |  |  |  | respiration. Get medi-<br>In case of skin contact  | ical attention immediate<br>t. Remove contaminated   | ly.<br>I clothing and   | shoes immediately.  |
|  | riazara pictogranis :  | 1 5   | >   |   |   |  |  |  | Wash affected area wi<br>evidence of chemical i  | oth mild soap or deterge   | nt for at least   | 10 minutes or until 1   |
| <form></form>  | Pi   | $\mathbf{v}$  |   |   | Ai  | fter eye contact :   |  |  | minutes. Lifting eveli   | ids occasionally, until m  | s with plenty of<br>o evidence of                                   | of water for at least<br>chemical remains.                      |
|  |  | Warning   |   |   |   | 0  |  |  | In case of ingestion. I  | DO NOT Induce vomitin  | ng unless dire  | ted to do so by   |
|  | rtazard statements:  | H315 Ca   | asses skin irritation   |   | A   | nei swanowing :  |  |  | medical personnel. N   | Never give anything by r   | nouth to an ur  | teonscious person. C  |
|  | -  | H318 Ca   | uses serious eye damage   |   | 4.2 M   | lost important sympto  | oms and effe   | cts, both acu  | de   |  |   |   |
|  | Precautionary statements:  | P302 + P  | 352 IF ON SKIN: Wash  | h with plenty of soap and water.  | A   | nd delayed:  |  |  | May cause skin irritati  | tion and eye damage  |   |   |
|  |  | P305+ P   | 351+P338 IF IN EYES: Rinse<br>minutes. Remove of  | e cautiously with water for several   |   |  |  | a attention a  |  | bicarbonate in an attem  | pt to neutraliz   | e the acid.   |
|  | 2.3 Other Statements   | None  |   |   |   |  | ig measure:  | s  | 0.04   |  |   |   |
|  |  |   |   |   | 00022000  |  |  |  |  | r or water spray. Fight la   | arger fires with  | n water spray or alco   |
| <text><text><text><text><text><text></text></text></text></text></text></text>   |  |   |   |   | 5.2 Sj<br>m   | pecial hazards arising<br>ilxture:   | from the su  | instance or  | Hydrogen Chloride gas  |  |   |   |
| <text><text><text><text><text><text></text></text></text></text></text></text>   |  |   |   |   | 5.3 A   | dvice for firefighters:  |  |  | Wear protective gear appro   | opriate for fire condition   | s including re  | spiratory protective  |
|  |  |   |   |   |   |  |  |  | p.m.   |  |   |   |
| A close in page work and durating reproductive work. Class with work attransfer duration of the second reproductive work. Class with work attransfer duration of the second reproductive work. Class with work attransfer duration of the second reproductive work. Class with work attransfer duration of the second reproductive work. Class with work attransfer duration of the second reproductive work. Class with work attransfer duration of the second reproductive work. Class with work attransfer duration of the second reproductive work. Class with work attransfer duration of the second reproductive work. Class with work attransfer duration of the second reproductive work. Class with work attransfer duration of the second reproductive work. Class with work attransfer duration of the second reproductive work. Class with work attransfer duration of the second reproductive work. Class with work attransfer duration of the second reproductive work. Class with work attransfer duration of the second reproductive work. Class with work attransfer duration of the second reproductive work. Class with work attransfer duration of the second reproductive work. The second reproductive work attransfer duration of the second reproductive work. The second reproductive work attransfer duration of the second reproductive work attransfer duratin attransfer duration of the second reproductive work   | SDS : Stop Solution (XGD007)   |   | 049000 1951 Weilen  |   | 0.2 E   |  |  |  | 9.0025550  |  | ays.  | D   |
| image:  | 6.3 Methods and material for containment and<br>champ.<br>6.4 References to other sections:  | Absorb in paper t<br>Large spills may<br>oxide.<br>For safe handling  | owel and discard in appropriate<br>be neutralized with dilute soluti<br>refer to Section 7. For informa   | e waste. Clean with water afterwards.<br>ieres of sodium carbonate or calcium   | <b>SIC</b><br>9.11<br>0<br>0<br>0   | TION 9. Physical a<br>Information on basic<br>chemical properties<br>Appearance:<br>Odior:<br>Odior:<br>Odior:<br>Diff:  | nd Chemic<br>physical and<br>2   | C<br>P<br>N<br>P   | 95<br>Ziear liquid, colorlass to sligh<br>vurgent (slight)<br>vo Data Available<br>H I   |  |   | rage 2  |
| Image: State of the properties of the properity of the properties of the properis of the properites of the properties of the   | cleanup:<br>6.4 References to other sections:<br>SECTION 7. Handling and storage<br>7.1 Presations for safe storage, including any<br>Incompatibilitions for safe storage, including any<br>Incompatibilities for safe storage, including any<br>Incompatibilities for safe storage, including any<br>Incompatibilities for safe storage, including any<br>Incompatibility of the safe storage storage storage storage<br>SECTION 8. Exposure control of pressonal<br>8.1 Exposer limits:<br>Component builts:   | Absorb in paper<br>Large spills may<br>coide.<br>For safe handling<br>disposal refer to 7<br>Practice good cher<br>clothing.<br>Store in tightly de<br>sunlight and heat.<br>Apart from the use<br>protection<br>Hydrogen   | ovel and discard in appropriate<br>be neutralized with dilute seturi<br>refer to Section 7. For information<br>feeting 13<br>mical hyperne when handling. A<br>sed, non-metal container, in a c<br>Store in well aired storage roors<br>is mentioned in section 1.2, no o   | e waste. Clean with water afterwards,<br>icms of sodium earbonate or calcium<br>ation on PPE refer to Section 8. For<br>Veed contact with eyes, skin, and<br>contosive compatible area. Prevent direct<br>rs.<br>other specific uses are stipulated   | SIG<br>9.11<br>0.1<br>0.0<br>0.0<br>0.0<br>0.0<br>0.0<br>0.0<br>0.0<br>0.0  | 110500. Rhysteri i<br>transmitter an basic<br>chenical posteritie<br>Apparanze:<br>Oder:<br>Oder:<br>Deling point/Beling<br>Plash point/Beli   | nd chemic<br>physical and<br>c<br>point:<br>range:<br>lity or explo<br>lity or explo<br>m-Octanol/wa<br>ture:<br>rature:   | C<br>P<br>P<br>N<br>N<br>N<br>N<br>N<br>N<br>N<br>N<br>N<br>N<br>N<br>N<br>N<br>N<br>N<br>N<br>N   | S<br>Tarr liquid, colectass to slight<br>tragent (slight)<br>to for har Available<br>of the source of the source of the<br>source of the source of the source of the source of the<br>source of the source of the source of the source of the<br>source of the source of the source of the source of the<br>source of the source of the source of the source of the<br>source of the source of the source of the source of the<br>source of the source of the source of the source of the<br>source of the source of the source of the source of the<br>source of the source of the source of the source of the source of the<br>source of the source of the source of the source of the source of the<br>source of the source of the source of the source of the source of the<br>source of the source   | n-Butyl Acotate = 1<br>d be similar to that of wa  | ter   | Page 4  |
| (13 mpm3)     In 3 mpm3 (13 mpm3)       23 Power Centrel     Fallingsuscentg controls     Fallingsuscentg in this stars should be aperiport with an synwah and addry downer. Use general robust channer withintion to keep arborne correctifications below permissible exposure funits.     It 3 a Dealbility of Mazardeus reactions     No specifie data       82.12 General protective and hyperioric measures.     The usual procentification to keep arborne correctifications below permissible exposure funits.     No specifie data     No specifie data       82.2 General protective and hyperioric measures.     The usual procentification to keep arborne correctifications below permissible exposure funits.     No sensitization to control contrel contrel control control contrel control control control contre  | cleanup:<br>5.4 References to other sections:<br><u>SECTION 7. Handling and storage</u><br>7.1 Presations for safe handling:<br>7.2 Conditions for safe storage, including any<br>Incompatibilities<br>7.3 Specific end uss(s):<br><u>SECTION 8. Exposure control/personal</u><br>5.1 Exposer limits:<br><u>Component with</u> Imit values that remain   | Absorb in paper<br>Large spills may<br>coide.<br>For safe handling<br>disposal refer to 7<br>Practice good cher<br>clothing.<br>Store in tightly de<br>sunlight and heat.<br>Apart from the use<br>protection<br>Hydrogen   | owel and discard in appropriate<br>to mortalized with dilute seturi<br>refer to Section 7. For informa<br>section 13<br>mical hygiene when handling. A<br>sock, neuronal container, in a<br>Store in well aired storage room<br>as mentioned in section 1.2, no of<br>European (Commission<br>directive 56:94)<br>SHr TWA – 5 ppm   | c waste. Clean with water afterwards,<br>knr of sodium earbonate or calcium<br>ation on PPE refer to Section 8. For<br>word contact with eyes, skin, and<br>somosive compatible area. Prevent direct<br>the<br>other specific uses are stipulated   | SPC<br>9.11<br>0.0<br>0.0<br>0.0<br>0.0<br>0.0<br>0.0<br>0.0<br>0.0<br>0.0  | TION 9. Physical a<br>Information on basic<br>Adentical properties<br>Oder.<br>Defensional and the second<br>pit.<br>Mething point/Theoring<br>Plash point/Theoring<br>Plash point/Theoring<br>Plash point/Theoring<br>Plash point/Theoring<br>Plash point Configuration<br>Insta-<br>Unator Configuration<br>Stability(Sold) a<br>Stability(Sold) a<br>Stability(Sold)<br>Plastino Configuration<br>Plastino Configuratio<br>Plastino Configuration<br>Plastino C   | nd chemic<br>physical and<br>c<br>point:<br>range:<br>lity or explo<br>lity or explo<br>m-Octanol/wa<br>ture:<br>rature:   | C<br>P<br>P<br>N<br>N<br>N<br>N<br>N<br>N<br>N<br>N<br>N<br>N<br>N<br>N<br>N<br>N<br>N<br>N<br>N   | There liquids, colordness to slight<br>transport (slight)<br>to Data Available<br>H I<br>Go Data Available<br>Go Data Available  | n-Butyl Acotate = 1<br>d be similar to that of wa  | ter   | rag 2   |
| 8.21 Engineering controls       Fulliss using this mixture should be capitoped with an eyewah and all with shower. Use general or clock-all shows within a level and they alrows concentrations below permissible concentrations below perminel perminelevel permissible concentrations below perm   | cleanup:<br>5.4 References to other sections:<br>SECTION 7. Handling and storage<br>7.1 Presations for safe handling:<br>2.2 Conditions for safe storage, including any<br>Incompatibility:<br>7.3 Specific end uss(s):<br>SECTION 8. Exposure control/personal<br>ALExposer limits:<br>Components with limit values that remain   | Absorb in paper<br>Large spills may<br>coide.<br>For safe handling<br>disposal refer to 7<br>Practice good cher<br>clothing.<br>Store in tightly de<br>sunlight and heat.<br>Apart from the use<br>protection<br>Hydrogen   | owel and discard in appropriate<br>to metralized with dilute seturi<br>refer to Section 7. For informa<br>section 13<br>mical hygiene when handling. A<br>seed, non-metal container, in a c<br>store in well ated storage room<br>s methioned in section 1.2, no c<br>European (Commission<br>directive %0.94)<br>SHz TWA = 5 ppn<br>(7.5 mg/m3)<br>STEL = 10 ppm   | c waste. Clean with water afterwards,<br>knr of sodium earbonate or calcium<br>ation on PPE refer to Section 8. For<br>word contact with eyes, skin, and<br>somosive compatible area. Prevent direct<br>the<br>other specific uses are stipulated   | 5200           9.1           0 <td>TION 9. Physical i<br/>Information on basic<br/>chemical properties<br/>Oder. Translotted<br/>Oder Translotted<br/>Oder Translotted<br/>Oder Translotted<br/>Oder Translotted<br/>Oder Translotted<br/>Oder Translotted<br/>Oder Translotted<br/>Oder Translotted<br/>Design point/Secarity<br/>Partician (Contenties)<br/>Partician (Contenties)<br/>Desempoint<br/>Schaftive density:<br/>Schaftive density:<br/>Schaftive density:<br/>Desempointies temper<br/>Desempointies te</td> <td>nd chemic<br/>physical and<br/>c<br/>point:<br/>range:<br/>lity or explo<br/>lity or explo<br/>m-Octanol/wa<br/>ture:<br/>rature:</td> <td>C<br/>P<br/>P<br/>N<br/>N<br/>S<br/>Sive N<br/>N<br/>N<br/>N<br/>N<br/>N<br/>N<br/>N<br/>N<br/>N<br/>N<br/>N<br/>N<br/>N<br/>N<br/>N<br/>N<br/>N<br/>N</td> <td>S<br/>Tear liquid, colorlass to slight<br/>murant (slight)<br/>(5 Jan Avanlake<br/>(5 Jan Avanlake)<br/>(5 Jan Avanlake<br/>(5 Jan Avanlake)<br/>(5 Jan Ava</td> <td>It yellow.<br/>n-Dutyl Acetate = 1<br/>i be similar to that of wa<br/>on available.</td> <td>5925<br/></td> <td></td>   | TION 9. Physical i<br>Information on basic<br>chemical properties<br>Oder. Translotted<br>Oder Translotted<br>Oder Translotted<br>Oder Translotted<br>Oder Translotted<br>Oder Translotted<br>Oder Translotted<br>Oder Translotted<br>Oder Translotted<br>Design point/Secarity<br>Partician (Contenties)<br>Partician (Contenties)<br>Desempoint<br>Schaftive density:<br>Schaftive density:<br>Schaftive density:<br>Desempointies temper<br>Desempointies te  | nd chemic<br>physical and<br>c<br>point:<br>range:<br>lity or explo<br>lity or explo<br>m-Octanol/wa<br>ture:<br>rature:   | C<br>P<br>P<br>N<br>N<br>S<br>Sive N<br>N<br>N<br>N<br>N<br>N<br>N<br>N<br>N<br>N<br>N<br>N<br>N<br>N<br>N<br>N<br>N<br>N<br>N   | S<br>Tear liquid, colorlass to slight<br>murant (slight)<br>(5 Jan Avanlake<br>(5 Jan Avanlake)<br>(5 Jan Avanlake<br>(5 Jan Avanlake)<br>(5 Jan Ava | It yellow.<br>n-Dutyl Acetate = 1<br>i be similar to that of wa<br>on available.   | 5925<br>  |   |
| general productive and byginne<br>requestion limits.     Res 22 General productive and byginne<br>requestion limits.     Netsion limits.     Netsion limits.       8 2.2 General productive and byginne<br>requestion limits.     The usual proceationary measures should be aftered to when handling chemicals.     Netsion limits.     Netsion limits.       8 2.2 General productive and byginne<br>requestion.     Safety glasses with side shelek, goggles. Use equiperent for eye protection tested and<br>approved under appropriate government shadlads such as NICSH (US) or EN (66 (ED)<br>but were created inters when working with chemicals.     Netsion limits.     Netsion limits.       Hand Protection:     Hand Protection:     Index with gloves. Choose must be imported pior to use. Use proper glover emoval<br>the importing glove's outer safe to based dia centra with this product.     Netsion limits.     Netsion limits.       Breathing Equipment:     Appropriate respiratory protections should be differentiate expiratory<br>tested and approved under appropriate government standards such as NICSH (US) or CEN<br>(ED).     Netsion limits.     Netsion limits.       8.2.3 Environmental coposure controls:     Contain spills, do not allow into environment     Notain spills, do not allow into environment     Notain spills, do not allow into environment       8.2.3 Environmental coposure controls:     Contain spills, do not allow into environment     Notain spills, do not allow into environment  | cleanup:<br>5.4 References to other sections:<br><u>SECTION 7. Handling and storage</u><br>7.1 Presations for safe handling:<br>7.2 Conditions for safe storage, including any<br>Incompatibilities<br>7.3 Specific end uss(s):<br><u>SECTION 8. Exposure control/personal</u><br>5.1 Exposer limits:<br><u>Component with</u> Imit values that remain   | Absorb in paper<br>Large spills may<br>coide.<br>For safe handling<br>disposal refer to 7<br>Practice good cher<br>clothing.<br>Store in tightly de<br>sunlight and heat.<br>Apart from the use<br>protection<br>Hydrogen   | owel and discard in appropriate<br>to metralized with dilute seturi<br>refer to Section 7. For informa<br>section 13<br>mical hygiene when handling. A<br>seed, non-metal container, in a c<br>store in well ated storage room<br>s methioned in section 1.2, no c<br>European (Commission<br>directive %0.94)<br>SHz TWA = 5 ppn<br>(7.5 mg/m3)<br>STEL = 10 ppm   | c waste. Clean with water afterwards,<br>knr of sodium earbonate or calcium<br>ation on PPE refer to Section 8. For<br>word contact with eyes, skin, and<br>somosive compatible area. Prevent direct<br>the<br>other specific uses are stipulated   | NECC           9.11           a)           b)           c)           c)           c)           c)           c)           b)           b)           c)   | TION 9. Physical f<br>information on basic<br>chemical properties<br>older:<br>Oder:<br>Boling point/Beding<br>Boling point/Beding<br>Boling point/Beding<br>Boling point/Boling<br>Plash point/Boling<br>Departbolity (solid g<br>Upperformer flammab<br>limits:<br>Vapor pressure;<br>Vapor pressure;<br>Vapor pressure;<br>Vapor pressure;<br>Vapor pressure;<br>Vapor pressure;<br>Vapor pressure;<br>Solubility(sol)<br>Platition Gefficient:<br>Auto-ignition temper<br>ylacsolity<br>Discosity:<br>Discosity:<br>Discosity:<br>Discosity:<br>Chenical Stability;<br>Chenical Stability;   | nd Chemics<br>c<br>c<br>point:<br>assous)<br>lify or asplo<br>n-Octanel/wi<br>tute:<br>and reactive<br>and reactive  | C<br>P<br>N<br>N<br>N<br>N<br>N<br>N<br>N<br>N<br>N<br>N<br>N<br>N<br>N<br>N<br>N<br>N<br>N<br>N   | S<br>Tear liquid, coledass to sligh<br>trugent (slight)<br>to for a Available<br>of Data Available<br>to tapa Available<br>to tapa Available<br>to tapa Available<br>to Data Available<br>Solde under neemal tempera<br>Under neemal conditions of   | It yellow.<br>n-Dutyl Acetate = 1<br>i be similar to that of wa<br>on available.   | 5925<br>  |   |
| 3.2.3 Greenal protective and lyginite<br>measures:       The usual precarationary measures should be affered to when handling chemicals.         Eye Protection:       Staffy algoes with side kilds, poggles. Use expirators for eye protection tested and<br>approved under appropriate government shandlards such as VIOSH (US) or PCN F66 (EU).<br>By and file protection:       If def allocardous decompositions products should and<br>option to chemical constitutions.         Hand Protection:       Interface with constitutions of testing approval under appropriate construction should be affected to when handling chemicals.         Hand Protection:       Interface with product to main government should be affected to which its product.         Bis affing Equipment:       Appropriate registratory protection, handlards and government   | deamp: <ul> <li>4.4 References to other sections:</li> </ul> <li>5.4 References to other sections:         <ul> <li>SECTION 7. Handling and storage</li> <li>7.1 Presentions for safe bandling</li> <li>7.2 Conditions for safe storage, including any incompatibilities:</li> <li>7.3 Specific end use(s):</li> </ul> </li> <li>SECTION 8. Exposure control/ypersonal St Exposure limits:         <ul> <li>Components with intri values that require monitoring at the wedglace:</li> </ul> <ul> <li>St Exposure Controls:</li> </ul> <ul> <li>St Exposure Controls:</li> </ul> </li>   | Absech in paper<br>Large split may be<br>used in the second second second second<br>disposal refer to 1<br>Practice good cher de second<br>el señage<br>Stere in tightly de second<br>second second second second second<br>part ferm the use<br>protection<br>Hydrogen<br>Chloride   | weed and discard in appropriate<br>be metralized with dilute seture<br>refer to Section 7. For informa<br>section 13<br>mical bygiene when handling. A<br>soch nen-metal container, in a c<br>Store in well aired storage room<br>is mentioned in section 1.2, no of<br>Beropean (Commission<br>directive 96:94)<br>SHr TWA = 5 ppm<br>(7.5 mg/m3)<br>STEL = 10 ppm<br>(1.5 mg/m3)  | e wate: Clean with water afterwords,<br>con of sodum earboute or calcium<br>ition on PPE refer to Section R. For<br>World contact with eyes, skin, and<br>contoive compatible area. Prevent direct<br>ns.<br>other specific uses are stipulated   | SIG<br>9.11<br>3.1<br>0.0<br>0.0<br>0.0<br>0.0<br>0.0<br>0.0<br>0.0<br>0.0<br>0.0<br>0  | TION 9. Rhysical i<br>information on basic<br>chemical properties<br>Appearance:<br>Odec:<br>Odec:<br>Decomposition of the second<br>plane point/facening<br>Plane po  | nd Chemics<br>c<br>c<br>point:<br>assous)<br>lify or asplo<br>n-Octanel/wi<br>tute:<br>and reactive<br>and reactive  | C<br>P<br>N<br>N<br>N<br>N<br>N<br>N<br>N<br>N<br>N<br>N<br>N<br>N<br>N<br>N<br>N<br>N<br>N<br>N   | S<br>Tear liquid, coledass to sligh<br>trugent (slight)<br>to for a Available<br>of Data Available<br>to tapa Available<br>to tapa Available<br>to tapa Available<br>to Data Available<br>Solde under neemal tempera<br>Under neemal conditions of   | It yellow.<br>n-Dutyl Acetate = 1<br>i be similar to that of wa<br>on available.   | 5925<br>  |   |
| meansa:     The usual productions:     The stand production of the sheet do yood wheet do yood wheet do you have the production and appropriate spectrum set shead have show the VSDB (125) or 2EX 160 (ED) have and appropriate spectrum set shead have show the VSDB (125) or 2EX 160 (ED) have and appropriate spectrum set shead have show the VSDB (125) or 2EX 160 (ED) have and appropriate spectrum set shead have show the VSDB (125) or 2EX 160 (ED) have and appropriate spectrum set shead have show the VSDB (125) or 2EX 160 (ED) have and appropriate spectrum set shead have show the VSDB (125) or 2EX 160 (ED) have and appropriate spectrum set is necoting with denicals.       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Handling and storage</li> <li>7.1 Presentions for safe bandling</li> <li>7.2 Conditions for safe storage, including any incompatibilities:</li> <li>7.3 Specific end use(s):</li> </ul> </li> <li>SECTION 8. Exposure control/ypersonal Safe storage monitoring at the workplace:         <ul> <li>workship at the workplace:</li> <li>SAF Exposure Controls:</li> </ul> </li>  | Absech in paper<br>Large splits may be an advected by a second<br>order of the special second second second second<br>disposal refer to:<br>Practice great default of the second<br>clothing.<br>Store in tightly de<br>satisfit an aback<br>satisfit an aback<br>pretection<br>[1: progen]<br>Choose (Construction)<br>Facilities using di   | owel and diseard in appropriate<br>the neutralized with dutic solution<br>refer to Section 7. For information<br>section 13.<br>mical hygiene when handling. A<br>sed, nen-metal container, in a<br>solution in well are donge recor-<br>tor in well are donge recor-<br>sent in the section 1.2, no co-<br>sent in the s  | e waste. Clean with water afterwards.<br>icros of sodum earboaute or calcium<br>tion on PPE refer to Section 8. For<br>Wood contact with eyes, skin, and<br>consoive compatible area. Prevent direct<br>rs.<br>other specific uses are stipulated<br>USA (OSHA)<br>Celting Limit – 5 ppm<br>(7.5 mg/m3)<br>with an eyewash and safety shower. Use   | SIG           9.1           a)           b)           c)           d)   | TION 9. Bhysical a<br>Information on basic<br>Apparatuses<br>Odes:<br>Odes:<br>Odes:<br>Development<br>Participation<br>Participation<br>Participation<br>Participation<br>Participation<br>Participation<br>Participation<br>Participation<br>Participation<br>Participation<br>Participation<br>Participation<br>Participation<br>Participation<br>Participation<br>Participation<br>Participation<br>Participation<br>Participation<br>Participation<br>Participation<br>Participation<br>Participation<br>Participation<br>Participation<br>Participation<br>Participation<br>Participation<br>Participation<br>Participation<br>Participation<br>Participation<br>Participation<br>Participation<br>Participation<br>Participation<br>Participation<br>Participation<br>Participation<br>Participation<br>Participation<br>Participation<br>Participation<br>Participation<br>Participation<br>Participation<br>Participation<br>Participation<br>Participation<br>Participation<br>Participation<br>Participation<br>Participation<br>Participation<br>Participation<br>Participation<br>Participation<br>Participation<br>Participation<br>Participation<br>Participation<br>Participation<br>Participation<br>Participation<br>Participation<br>Participation<br>Participation<br>Participation<br>Participation<br>Participation<br>Participation<br>Participation<br>Participation<br>Participation<br>Participation<br>Participation<br>Participation<br>Participation<br>Participation<br>Participation<br>Participation<br>Participation<br>Participation<br>Participation<br>Participation<br>Participation<br>Participation<br>Participation<br>Participation<br>Participation<br>Participation<br>Participation<br>Participation<br>Participation<br>Participation<br>Participation<br>Participation<br>Participation<br>Participation<br>Participation<br>Participation<br>Participation<br>Participation<br>Participation<br>Participation<br>Participation<br>Participation<br>Participation<br>Participation<br>Participation<br>Participation<br>Participation<br>Participation<br>Participation<br>Participation<br>Participation<br>Participation<br>Participation<br>Participation<br>Participation<br>Participation<br>Participation<br>Participation<br>Participation<br>Participation<br>Participation<br>Participation<br>Participation<br>Participation<br>Participation<br>Participation<br>Participation<br>Participation<br>Participation<br>Participation<br>Participation<br>Participation<br>Participation<br>Participation<br>Participation<br>Part 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| Breadling Equipment     Appropriate registratory protection spallices and a documbul to SUR 10.03 in 20CX FID 160 (EU).       Breadling Equipment     Appropriate registratory protection spallices and a good laboratory protection spallices and components (EU). <u>Security Security Securit</u>   | cleanup: 4.4 References to other wettions:  SECITION 7. Handling and storage (1) Presentions for aide handling (2) Conditions for aide handling (2) Conditions for aide torage, including any Incompatibilities: (2) Specific end uss(s):  SECITION 8.8 Expressive controls/pressive (2) Specific end uss(s):  SECITION 8.8 Expressive controls/pressive (2) Expressive lists (2) Components with limit values that require monitoring at the workplace:  4.2 Expressive Controls (3) 2.1 Engineering controls (4) 2.1 Engineering controls (4) 2.1 Engineering controls (4) 4.2 Expressive Controls (4) 4.3 Expressive lists (4) 4.3 Expressive lists (5) 4.3 Expressive controls (5) 4.3 Expressive lists (5) 4.3 Exp  | Absech in paper<br>Large splits may be an advected by a second<br>order of the special second second second second<br>disposal refer to:<br>Practice great default of the second<br>clothing.<br>Store in tightly de<br>satisfit an aback<br>satisfit an aback<br>pretection<br>[1: progen]<br>Choose (Construction)<br>Facilities using di   | owel and discard in appropriate<br>the neutralized with dutic solution<br>refer to Section 7. For informa-<br>section 13.<br>mical hygiene when handling. A<br>sed, nen-metal container, in a<br>solution in well are donge recor-<br>tor in well are donge recor-<br>sentioned in section 1.2, no of<br>mentioned in section 1.2, no of<br>smentioned in section 1.2, no<br>section 3.<br>Burry Section 3.<br>Strate 1.2, pp. 1.<br>Strate 3.<br>Strate | e waste. Clean with water afterwards.<br>icros of sodum earboaute or calcium<br>tion on PPE refer to Section 8. For<br>Wood contact with eyes, skin, and<br>consoive compatible area. Prevent direct<br>rs.<br>other specific uses are stipulated<br>USA (OSHA)<br>Celting Limit – 5 ppm<br>(7.5 mg/m3)<br>with an eyewash and safety shower. Use   | S200         9.1           9.1         9.1           9.1         9.1           9.0         9.0           9.0         9.0           9.0         9.0           9.0         9.0           9.0         9.0           9.0         9.0           9.0         9.0           9.0         9.0           9.0         9.0           9.1         10.1           10.1         10.2           10.1         10.2           10.1         10.2           10.1         10.2           10.1         10.2           10.1         10.2           10.2         10.1           10.2         10.2           10.3         10.4           10.5         10.5   | HON 9. Physical i<br>Information on basic<br>chemical properties<br>Ode:<br>Ode: Translotd<br>Ode: Translotd<br>Office<br>Deling point/Bearing<br>Point<br>Bealing point/Bearing<br>Deling point/Bearing<br>Properties<br>Translottics<br>Scholling for the Scholler<br>Properties<br>Translottics<br>Scholling for the Scholler<br>Decomposition temper<br>Decomposition temper<br>Decomposi  | nd chemics<br>physical and<br>r<br>print:<br>assons):<br>n-Octanel/w.<br>n-Octanel/w.<br>n-Octanel/w.<br>assons):<br>outprint:<br>assons):<br>assons):<br>assons):<br>assons):<br>assons):<br>assons):<br>assons):<br>assons):<br>assons):<br>assons):<br>assons):<br>assons):<br>assons):<br>assons):<br>assons):<br>assons):<br>assons):<br>assons):<br>assons):<br>assons):<br>assons):<br>assons):<br>assons):<br>assons):<br>assons):<br>assons):<br>assons):<br>assons):<br>assons):<br>assons):<br>assons):<br>assons):<br>assons):<br>assons):<br>assons):<br>assons):<br>assons):<br>assons):<br>assons):<br>assons):<br>assons):<br>assons):<br>assons):<br>assons):<br>assons):<br>assons):<br>assons):<br>assons):<br>assons):<br>assons):<br>assons):<br>assons):<br>assons):<br>assons):<br>assons):<br>assons):<br>assons):<br>assons):<br>assons):<br>assons):<br>assons):<br>assons):<br>assons):<br>assons):<br>assons):<br>assons):<br>assons):<br>assons):<br>assons):<br>assons):<br>assons):<br>assons):<br>assons):<br>assons):<br>assons):<br>assons):<br>assons):<br>assons):<br>assons):<br>assons):<br>assons):<br>assons):<br>assons):<br>assons):<br>assons):<br>assons):<br>assons):<br>assons):<br>assons):<br>assons):<br>assons):<br>assons):<br>assons):<br>assons):<br>assons):<br>assons):<br>assons):<br>assons):<br>assons):<br>assons):<br>assons):<br>assons):<br>assons):<br>assons):<br>assons):<br>assons):<br>assons):<br>assons):<br>assons):<br>assons):<br>assons):<br>assons):<br>assons):<br>assons):<br>assons):<br>assons):<br>assons):<br>assons):<br>assons):<br>assons):<br>assons):<br>assons):<br>assons):<br>assons):<br>assons):<br>assons):<br>assons):<br>assons):<br>assons):<br>assons):<br>assons):<br>assons):<br>assons):<br>assons):<br>assons):<br>assons):<br>assons):<br>assons):<br>assons):<br>assons):<br>assons):<br>assons):<br>assons):<br>assons):<br>assons):<br>assons):<br>assons):<br>assons):<br>assons):<br>assons):<br>assons):<br>assons):<br>assons):<br>assons):<br>assons):<br>assons):<br>assons):<br>assons):<br>assons):<br>assons):<br>assons):<br>assons):<br>assons):<br>assons):<br>assons):<br>assons):<br>assons):<br>assons):<br>assons):<br>assons):<br>assons):<br>assons):<br>assons):<br>assons):<br>assons):<br>assons):<br>assons):<br>assons):<br>assons):<br>assons):<br>assons):<br>assons):<br>assons):<br>assons):<br>assons):<br>assons):<br>assons):<br>assons):<br>assons):<br>assons):<br>assons):<br>assons):<br>assons):<br>assons   | C<br>P<br>P<br>N<br>N<br>N<br>Sive<br>N<br>N<br>N<br>N<br>N<br>N<br>N<br>N<br>N<br>N<br>N<br>N<br>N<br>N<br>N<br>N<br>N<br>N<br>N  | S<br>Tear liquid, colorlass to sligh<br>tragent (slight)<br>6 Data Available<br>H I<br>6 Data Available<br>6 Data Available<br>8 Data Available<br>9 Data Available<br>8 Data Available<br>9     | ht yellow.<br>n-Butyl Acetate = 1<br>i be similar to that of wa<br>on available.<br>satures and pressures.<br>fatorage and use, hazard   | ous reactions   | will not occur.   |
| SECTION 11.     Consistence of the working with densitials       Hard Protection:     Index with inspected prior to use. Use paper glove removal technique (righted to text) to use in covednance with this product. Dispose of conventional glove's voter sufficient to use in according to the probability and glovel's voter sufficient to use the proper glove removal technique (righted to text) the probability and glovel's voter sufficient to use the proper glove removal technique (righted to text) the probability and glovel's voter sufficient to use the proper glove removal technique (righted to text) the probability and glovel's voter sufficient to use the voter with this product. The proper glover removal technique (righted to text) the probability plovel's text to satisfy the repetition response form it.     SECTION 11. Toxicological Information     764.764.91C1     Tiffet Dose: Appendix Properties and   | cleanup:  4.4 References to other sections:  5.1 Precautions for safe handling: 7.2 Conditions for safe storage, including any Incompatibilities: 7.3 Specific end use(s):  5.5 Exposure controls/personnal 5.6 Exposure controls/personnal 5.7 Exposure Controls 5.8 Exposure Controls 5.9 Exposure Controls 5.9 Exposure Controls 5.9 Exposure Controls 5.0 Exposure Controls 5.2 Exposure Controls 5.2 Controls and the protective and hypeirec   | Abset in paper<br>Large split may be an additional and a split of the spl   | weed and discard in appropriate<br>be metralized with dilute seture<br>interaction of the discussion of the seture<br>incomposition of the discussion of the discussion<br>incomposition of the discussion of the discussion<br>state of the discussion of the discussion of the<br>seture of the discussion of the discussion<br>directive 96:94)<br>SHz TWA = 5 ppm<br>(7.5 mg/m3)<br>STEL = 10 ppm<br>(3.5 mg/m3)<br>state while an of the discussion of the discussion<br>of the discussion of the discussion<br>of the discussion of the discussion of the discussion of the discussion<br>of the discussion of the discussion of the discussion of the discussion<br>of the discussion of   | e wate: Clean with water afterwords,<br>con of sodum earbouite or calcium<br>ition on PPE refer to Section R. For<br>World contact with eyes, skin, and<br>contoive compatible area. Prevent direct<br>ns.<br>other specific uses are stipulated<br>USA (OSHA)<br>Celting Limit = 5 ppm<br>(7.5 mg/m3)<br>with an eyewash and safety shower. Use<br>ne concentrations below permissible   | S200         9.1           9.1         9.1           9.1         9.1           9.0         9.0           9.0         9.0           9.0         9.0           9.0         9.0           9.0         9.0           9.0         9.0           9.0         9.0           9.0         9.0           9.0         9.0           9.1         10.1           10.1         10.2           10.1         10.2           10.1         10.2           10.1         10.2           10.1         10.2           10.1         10.2           10.2         10.1           10.2         10.2           10.3         10.4           10.5         10.5   | HON 9. Physical i<br>Information on basic<br>chemical properties<br>Ode:<br>Ode: Translotd<br>Ode: Translotd<br>Office<br>Deling point/Bearing<br>Point<br>Bealing point/Bearing<br>Deling point/Bearing<br>Properties<br>Translottics<br>Scholling for the Scholler<br>Properties<br>Translottics<br>Scholling for the Scholler<br>Decomposition temper<br>Decomposition temper<br>Decomposi  | nd chemics<br>physical and<br>r<br>print:<br>assons):<br>n-Octanel/w.<br>n-Octanel/w.<br>n-Octanel/w.<br>assons):<br>outprint:<br>assons):<br>assons):<br>assons):<br>assons):<br>assons):<br>assons):<br>assons):<br>assons):<br>assons):<br>assons):<br>assons):<br>assons):<br>assons):<br>assons):<br>assons):<br>assons):<br>assons):<br>assons):<br>assons):<br>assons):<br>assons):<br>assons):<br>assons):<br>assons):<br>assons):<br>assons):<br>assons):<br>assons):<br>assons):<br>assons):<br>assons):<br>assons):<br>assons):<br>assons):<br>assons):<br>assons):<br>assons):<br>assons):<br>assons):<br>assons):<br>assons):<br>assons):<br>assons):<br>assons):<br>assons):<br>assons):<br>assons):<br>assons):<br>assons):<br>assons):<br>assons):<br>assons):<br>assons):<br>assons):<br>assons):<br>assons):<br>assons):<br>assons):<br>assons):<br>assons):<br>assons):<br>assons):<br>assons):<br>assons):<br>assons):<br>assons):<br>assons):<br>assons):<br>assons):<br>assons):<br>assons):<br>assons):<br>assons):<br>assons):<br>assons):<br>assons):<br>assons):<br>assons):<br>assons):<br>assons):<br>assons):<br>assons):<br>assons):<br>assons):<br>assons):<br>assons):<br>assons):<br>assons):<br>assons):<br>assons):<br>assons):<br>assons):<br>assons):<br>assons):<br>assons):<br>assons):<br>assons):<br>assons):<br>assons):<br>assons):<br>assons):<br>assons):<br>assons):<br>assons):<br>assons):<br>assons):<br>assons):<br>assons):<br>assons):<br>assons):<br>assons):<br>assons):<br>assons):<br>assons):<br>assons):<br>assons):<br>assons):<br>assons):<br>assons):<br>assons):<br>assons):<br>assons):<br>assons):<br>assons):<br>assons):<br>assons):<br>assons):<br>assons):<br>assons):<br>assons):<br>assons):<br>assons):<br>assons):<br>assons):<br>assons):<br>assons):<br>assons):<br>assons):<br>assons):<br>assons):<br>assons):<br>assons):<br>assons):<br>assons):<br>assons):<br>assons):<br>assons):<br>assons):<br>assons):<br>assons):<br>assons):<br>assons):<br>assons):<br>assons):<br>assons):<br>assons):<br>assons):<br>assons):<br>assons):<br>assons):<br>assons):<br>assons):<br>assons):<br>assons):<br>assons):<br>assons):<br>assons):<br>assons):<br>assons):<br>assons):<br>assons):<br>assons):<br>assons):<br>assons):<br>assons):<br>assons):<br>assons):<br>assons):<br>assons):<br>assons):<br>assons):<br>assons):<br>assons):<br>assons):<br>assons):<br>assons):<br>assons):<br>assons):<br>assons):<br>assons):<br>assons):<br>assons):<br>assons):<br>assons   | C<br>P<br>P<br>N<br>N<br>N<br>Sive<br>N<br>N<br>N<br>N<br>N<br>N<br>N<br>N<br>N<br>N<br>N<br>N<br>N<br>N<br>N<br>N<br>N<br>N<br>N  | S<br>Tear liquid, colorlass to sligh<br>tragent (slight)<br>6 Data Available<br>H I<br>6 Data Available<br>6 Data Available<br>8 Data Available<br>9 Data Available<br>8 Data Available<br>9     | ht yellow.<br>n-Butyl Acetate = 1<br>i be similar to that of wa<br>on available.<br>satures and pressures.<br>fatorage and use, hazard   | ous reactions   | will not occur.   |
| Instruction     isolarization from touching allow's voiter sufficies) to avoid shill contrart with this product.       Dispose of contrartised gives allow in the set in accordance with this product.     Acate effects (lowisity tasts): <u>767-10-10 (C)</u> <u>1150-9000rg/u</u> <u>1250-9000rg/u</u>  | cleanup: 6.4 References to other wettions:  SEE TOX 7. Hamiling and storage 7.1 Presentions for ade handling 7.2 Conditions for ade loandling 7.2 Specific end uss(s):  SEC TOX 8. Exposure controls/personal 8.2 Exposer Inits: Corporats with limit values that require monitoring at the wedglace: 8.2 Exposure Controls: 8.2 Contend protective and logieric measures:   | Abset in paper<br>Large splits may be<br>used in the split of the split of the<br>split of the split of the split of the<br>desposed refer to 1<br>Practice proof the<br>clothing.<br>Store in tightly de<br>sublid to ablack and<br>the split of the split of the<br>protection<br>function of the split of the<br>protection<br>function of the split of the<br>split of the split of the split of the split of the<br>split of the split of the split of the split of the<br>split of the split of the split of the split of the split of the<br>split of the split of the split of the split of the split of the<br>split of the split of the split of the split of the split of the<br>split of the split of the split of the split of the split of the<br>split of the split of the split of the split of the split of the<br>split of the split of the split of the split of the split of the<br>split of the split  | owel and discard in appropriate<br>be metalized with dute setuit<br>refer to Section 7. For informa<br>section 13<br>mical bygione when handling. A<br>sock pro-metal container, in a c<br>Store in well aired storage room<br>smethioned in section 1.2, no co<br>European (Commission<br>directive \$6590)<br>Shir TWA = 5 ppm<br>(2.5 mg/m3)<br>SHE T = 0 ppm<br>(3.5 mg/m3)<br>enauty measures should be acheen<br>any measures should be acheen<br>compromised beacher   | e waste. Clean with water afterwards,<br>ten of sodum earbouide or calcium<br>itien on PPE refer to Section E. For<br>word contact with eyes, skin, and<br>controive compatible area. Prevent direct<br>rs.<br>other specific uses are stipulated<br>USA (OSIA)<br>Celting Limit – 5 ppm<br>(7.5 mg/m3)<br>with an eyewash and safety shower. Use<br>ne concentrations below permissible<br>red to when handling chemicals.<br>impart for expression tested and<br>such as NOSE (CISY or EN FOR (D))  | Size           9.11           0 </td <td>IION 9. 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Rhysical 1<br>diornautia na baiog<br>chemical poperties<br>Appearance<br>Oder.<br>Development<br>Plan point/Becling<br>Plan Development<br>Development<br>Development<br>Development<br>Plantion Coefficient<br>Development<br>Development<br>Development<br>Development<br>Development<br>Development<br>Development<br>Development<br>Development<br>Development<br>Development<br>Development<br>Development<br>Development<br>Development<br>Development<br>Development<br>Development<br>Development<br>Development<br>Development<br>Development<br>Development<br>Development<br>Development<br>Development<br>Development<br>Development<br>Development<br>Development<br>Development<br>Development<br>Development<br>Development<br>Development<br>Development<br>Development<br>Development<br>Development<br>Development<br>Development<br>Development<br>Development<br>Development<br>Development<br>Development<br>Development<br>Development<br>Development<br>Development<br>Development<br>Development<br>Development<br>Development<br>Development<br>Development<br>Development<br>Development<br>Development<br>Development<br>Development<br>Development<br>Development<br>Development<br>Development<br>Development<br>Development<br>Development<br>Development<br>Development<br>Development<br>Development<br>Development<br>Development<br>Development<br>Development<br>Development<br>Development<br>Development<br>Development<br>Development<br>Development<br>Development<br>Development<br>Development<br>Development<br>Development<br>Development<br>Development<br>Development<br>Development<br>Development<br>Development<br>Development<br>Development<br>Development<br>Development<br>Development<br>Development<br>Development<br>Development<br>Development<br>Development<br>Development<br>Development<br>Development<br>Development<br>Development<br>Development<br>Development<br>Development<br>Development<br>Development<br>Development<br>Development<br>Development<br>Development<br>Development<br>Development<br>Development<br>Development<br>Development<br>Development<br>Development<br>Development<br>Development<br>Development<br>Development<br>Development<br>Development<br>Development<br>Development<br>Development<br>Development<br>Development<br>Development<br>Development<br>Development<br>Development<br>Development<br>Development<br>Dev | nd cleanic<br>physical and<br>protection of the second<br>protection of the second<br>protection of the second<br>and reaction<br>out reaction<br>out reaction<br>protection produces<br>produce of the second<br>second produces of the second second<br>second produces of the second second<br>second produces of the second second second<br>second produces of the second second second<br>second produces of the second second second<br>second second second second second second second<br>second second second second second second second second second second second<br>second second secon   | C C P<br>N P<br>N N<br>N N<br>N N<br>N N<br>N N<br>N<br>N<br>N<br>N<br>N<br>N<br>N   | S<br>Tear liquid, colorlass to sligh<br>tragent (slight)<br>6 Data Available<br>H I<br>6 Data Available<br>6 Data Available<br>8 Data Available<br>9 Data Available<br>8 Data Available<br>9     | ht yellow.<br>n-Butyl Acetate = 1<br>i be similar to that of wa<br>on available.<br>satures and pressures.<br>fatorage and use, hazard   | ous reactions   | will not occur.   |
| sing mis, analysis protocols. An approved disposable air punfying muticular respirator<br>myb busie da shckipto organizami controls. Alwaysis exerptorists and components<br>beid and approved under appropriate government standards such as NUOSH (US) or CEN<br>(EU).<br>& 2.3 Environmental exposure controls: Centain spills, do not allow into-environment<br>EVENTION 12: Ecological information<br><b>Section 12: Ecological information</b><br><b>Section 12: Ecological informat</b> | cleanup:     4.4 References to other sections:     SEC ION 5.4 Handling and storage     7.1 Presentions for and handling     1.2 Conditions for safe storage, including any     Incompatibilities:     3.5 Specific end uss(s):     SEC ION 5.8 Explosure controls/personal     1.6 Explosure Initia:     Components with limit values that require     monitoring at the workplace:     8.1 Explosure Controls:     8.2 Contends (controls)     8.2 Contends (controls)     8.2 Contends     Section (controls)     8.2 Contends (controls)     8.2 Contends (controls)     8.2 Protection:     Eye Protection:   | Absech in paper<br>Large split may be an adding<br>Large split may be an adding<br>the search of the split search of the<br>disposal refer to<br>Practice good cher<br>dechange.<br>Store in highly de<br>availabilit and bear<br>predection<br>Practices and the split search<br>predection<br>Practices and the split search<br>predection of   | vovel and discard in appropriate<br>be neutralized with dilute solutions<br>refer to Section 7. For informa-<br>fection 13.<br>mical hyperne when handling. A<br>sole, non-metal container, in a c<br>Store in well aired storage room<br>is mentioned in section 1.2, no c<br>section well aired storage room<br>is mentioned in section 1.2, no c<br>difference of the section 1.2, no c<br>section 1.2, no c<br>secti   | e wate: Clean with water afterwards,<br>iers of sodum earboutle or calcium<br>ities of sodum earboutle or calcium<br>ities on PPE refer to Section 8. For<br>void contact with eyes, skin, and<br>consiste compatible area. Prevent direct<br>ns.<br>other specific uses are stipulated<br>USA (OSHA)<br>Caling Limit = 5 ppm<br>(7.5 mg/m3)<br>with an eyewash and safety shower. Use<br>ne concentrations balow permissible<br>red to when handling chemicals.<br>such as NOSH (US) or EN 166 (ED),<br>by OSHA (US) an OSTR 910 13.3 Do<br>calo   | Size           9.1           0 <td>IION 9. 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| (EU).     Additional toxicological information       8.2.3 Environmental exposure controls:     Centain spills, do not allow into environment       7.1 Exciting:     Additional toxicological information       12.1 Tesking:     Aqualit Exciting (1N HG)     Effect doss       Asset fields into exciting in the control of th   | cleanup:     4.4 References to other sections:     SEC ION 5.4 Handling and storage     7.1 Presentions for and handling     1.2 Conditions for safe storage, including any     Incompatibilities:     3.5 Specific end uss(s):     SEC ION 5.8 Explosure controls/personal     1.6 Explosure Initia:     Components with limit values that require     monitoring at the workplace:     8.1 Explosure Controls:     8.2 Contends (controls)     8.2 Contends (controls)     8.2 Contends     Section (controls)     8.2 Contends (controls)     8.2 Contends (controls)     8.2 Protection:     Eye Protection:   | Abset in paper<br>Large split may be<br>used in the second second second second<br>disposal refer to:<br>Practice proof children second<br>electrical<br>protections<br>protections<br>protections<br>protections<br>protections<br>protections<br>protections<br>protections<br>protections<br>protections<br>protections<br>protections<br>protections<br>protections<br>protections<br>protections<br>protections<br>protections<br>protections<br>protections<br>protections<br>protections<br>protections<br>protections<br>protections<br>protections<br>protections<br>protections<br>protections<br>protections<br>protections<br>protections<br>protections<br>protections<br>protections<br>protections<br>protections<br>protections<br>protections<br>protections<br>protections<br>protections<br>protections<br>protections<br>protections<br>protections<br>protections<br>protections<br>protections<br>protections<br>protections<br>protections<br>protections<br>protections<br>protections<br>protections<br>protections<br>protections<br>protections<br>protections<br>protections<br>protections<br>protections<br>protections<br>protections<br>protections<br>protections<br>protections<br>protections<br>protections<br>protections<br>protections<br>protections<br>protections<br>protections<br>protections<br>protections<br>protections<br>protections<br>protections<br>protections<br>protections<br>protections<br>protections<br>protections<br>protections<br>protections<br>protections<br>protections<br>protections<br>protections<br>protections<br>protections<br>protections<br>protections<br>protections<br>protections<br>protections<br>protections<br>protections<br>protections<br>protections<br>protections<br>protections<br>protections<br>protections<br>protections<br>protections<br>protections<br>protections<br>protections<br>protections<br>protections<br>protections<br>protections<br>protections<br>protections<br>protections<br>protections<br>protections<br>protections<br>protections<br>protections<br>protections<br>protections<br>protections<br>protections<br>protections<br>protections<br>protections<br>protections<br>protections<br>protections<br>protections<br>protections<br>protections<br>protections<br>protections<br>protections<br>protections<br>protections<br>protections<br>protections<br>protections<br>protections<br>protections<br>protections<br>protections<br>protections<br>protections<br>protections<br>protections<br>protections<br>protections<br>protections<br>protections<br>protections<br>protections<br>protections<br>pro | weed and discurd in appropriate<br>be metralized with dute seture<br>interaction of the dute seture<br>income seture of the dute seture<br>seture of the dute seture of the dute<br>seture of the dute seture of the dute<br>seture seture seture seture seture<br>dute seture seture seture seture<br>and the dute seture seture seture<br>in the dute seture seture seture seture<br>of the dute seture seture seture seture<br>and the dute seture seture seture seture<br>in the dute seture seture seture seture<br>and the dute seture seture seture seture<br>in the dute seture seture seture seture seture<br>is the dute seture seture seture seture seture<br>is the dute seture seture seture seture seture<br>is the dute seture seture seture seture seture seture<br>is the dute seture seture seture seture seture seture seture<br>is the seture seture seture seture seture seture seture seture seture<br>is dute seture  | c waste. 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| SECTION 12. Ecological information           12.1 Toxicity:         Aquatic taskity (1N HC)         Effect dose         Exposure time         Species           Acute fails toxicity         LCS0-820 mg/L         90h         Lausistis idit           Acute daphina toxicity         Nodata  | cleanup: <ul> <li>4.4 References to other sections:</li> <li>5.4 References to other sections:</li> </ul> <li>5.1 Precautions for safe storage, including any Incompatibilities:         <ul> <li>7.3 Specific end use(s):</li> <li>5.4 CTION S.E. Exposure controls/personal</li> </ul> </li> <li>5.1 Exposure Initia:         <ul> <li>Comptonest with limit values that require monitoring at the workplace:</li> <li>8.2 Exposure Controls:                  <ul> <li>8.2.1 Engineering controls</li> <li>8.2.2 Concernal protective and hygieric necessars:</li></ul></li></ul></li>  | Absech in paper<br>Large split may be<br>related to the second second second<br>deposal refer to<br>the second second second second<br>deposal refer to<br>the second second second second<br>deposal refer to<br>the second second second second<br>second second second second second<br>second second second second second second<br>second second second second second second<br>second second second second second second second second second second<br>second second s  | vovel and discard in appropriate<br>be neutralized with dulut solution<br>refer to Section 7. For informa-<br>fection 13.<br>mical hyperne when handling: A<br>sole, nen-metal container, in a c<br>Store in well aired storage room<br>is mentioned in section 1.2, no c<br>section well aired storage room<br>is mentioned in section 1.2, no c<br>differ two 56:94).<br>differ two 56:94.<br>differ  | e wate: Clean with water afterwards,<br>ieres of sodium carbonate or calcium<br>inten on PPE refer to Section 8. For<br>Veod contact with eyes, skin, and<br>controlive compatible area. Prevent direct<br>ns.<br>other specific uses are stipulated<br>USA (OSHA)<br>Caling Limit – 5 ppm<br>(7.5 mg/m3)<br>vith an ejewash and safety shower. Use<br>ns concentrations balow permissible<br>reconcentrations balow permissible performance and<br>reconcentrations balow permissible performance<br>able are performed performance and reconcentrations<br>able are performed particulate sequences | Sec.<br>Sec.<br>9.11<br>3.1<br>3.1<br>3.1<br>3.1<br>3.1<br>3.1<br>3.1   | TION 9. Physical i     Toronation on basic chemical properties of Appearance:         Code:  | nd Chemist<br>Constraints of the second<br>Constraints of the second<br>Constrain   | sive h h h h h h h h h h h h h h h h h h h   | S Tear liquid, colorloss to sligh Turgent (ulght) G Da Available D Da Available D Da Available D Da Available D D D Da Available D D D D Available D D D D Available D D D D D D D D D D D D D D D D D D D  | It yellow.<br>n-Butyl Acetate = 1<br>d be similar to that of wa<br>on available.<br>atures and pressures.<br>(storage and use, hazard<br>s, Amines.<br>Storage and use, hazard<br><u>Effect Dese</u><br><u>1.1550-900mg.hg</u><br><u>1.2559-3124 mgT</u> | ous reactions<br>ous decompos                                       | will not occur.<br>attors products show                         |
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Exposure controls/personal</li> </ul> </li> <li>5.1 Exposure Initia:         <ul> <li>Comptonest with limit values that require monitoring at the workplace:</li> <li>8.2 Exposure Controls:                  <ul> <li>8.2.1 Engineering controls</li> <li>8.2.2 Concernal protective and hygieric necessars:</li></ul></li></ul></li>  | Abset in paper<br>Large splits may be<br>an adding the second second second<br>disposal refer to:<br>disposal refer to:<br>predection<br>like refer to the<br>account of refer to the<br>account of refer to the<br>disposal refer to the<br>second refer to the<br>disposal refer to the disposal<br>disposal refer to the<br>disposal refer to the<br>disposal refer to the<br>disposal refer to the disposal refer to the disposal refer to the<br>disposal refer to the disposal ref to the disposal refer to the disposal refer to the disposa  | vovel and discard in appropriate<br>be neutralized with dulut solution<br>refer to Section 7. 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# PRODUCT APPLICATION GUIDE Testing Roundup Ready Soy Bulk Grain or Flour

### Intended Use

This Application Guide provides instruction for the use of the AP 010 QualiPlate Kit for Roundup Ready Corn and Cotton for qualitative or quantitative laboratory detection of CP4-EPSPS enzyme (CP4) coded for by the Roundup Ready gene in soybean **grain** or **flour**. This kit has not been validated for—and should not be used with—soy **meal** or any other soy product. This test will detect the CP4 enzyme in 0.1% Roundup Ready (RR1) or 0.2% Roundup Ready 2 Yield (RR2) soy grain or flour, and requires one hour to run. Follow instructions in the product insert for running the assay. This guide covers sample preparation, calibration, and data interpretation for the soybean/soy flour matrices.

### Materials Required:

- EnviroLogix QualiPlate Kit for Roundup Ready Corn and Cotton (AP 010, or AP 010 NWV10)
- RR1 soy powder standard(s), sourced from the IRMM-JRC (European Commission Joint Research Centre, Institute for Reference Materials and Measurements, Retieseweg, B-2440 Geel, Belgium. www.irmm.jrc.be)
- RR2 soy powder standard (available as 100%), sourced from AOCS (American Association of Oil Chemists, Headquarters 2710 S. Boulder, Urbana, IL 61802-6996 USA; https://secure.aocs.org/crm/index.cfm)
- centrifuge capable of 5000 x g
- grinder or mill capable of reducing samples to a 40-mesh particle size
- test or centrifuge tubes for extraction of grain and dilution of sample extracts

## **Standard Extracts:**

Recommended concentrations of RR Standards are Negative (0), 0.1, 1.0 and 2.0% RR1 soy powder, or Negative, 0.2, 2.0, and 4% RR2Y soy powder. These standards must be powders that will pass through a 40-mesh sieve. Mix positive and negative powders by weight to prepare the desired concentrations.

Standards must be extracted prior to performing the test. Standard extracts may then be aliquoted and frozen for use in later testing. Procedure:

- 1. Add 50 mL of water (distilled or deionized) to each 1 gram of soy powder Standard. Shake or vortex vigorously for 30 seconds, let stand for 1 hour, then shake again.
- 2. Centrifuge the extracts at 5000 x g for 5 minutes.
- 3. Pour the clarified extracts into a clean tube, and transfer 0.25 mL aliquots to suitable plastic, labeled, capped tubes for freezer storage (-20°C). These frozen extracts are stable for at least 6 months in a <u>non-defrosting freezer</u>.

## Sample Extraction and Preparation:

• This protocol calls for a small sample (20 to 50 grams) to be analyzed. It is essential that this sample be well mixed and representative of the larger bulk. The test will detect 0.1% RR1 soy in soy flour (or 1 RR bean in a sample of 999 non-transgenic beans) or 0.2% RR2Y soy in soy flour (or 1 RR2Y bean in a sample of 499 non-transgenic beans).

- It is the responsibility of the user to ensure proper sampling and thorough mixing prior to analysis. Once representative samples have been obtained from the truck or container, they can be reduced in size using a splitter and uniformly ground and mixed.
- The finer the grind, the faster and more efficient the extraction. The commercial standards are a soy powder. In order for soybean samples to be measured against these standards, the ground/milled samples <u>must</u> be passed through a 40-mesh sieve. The fine sieved material is then extracted and tested. Failure to follow this procedure will result in falsely low reports of sample concentration.
- For 1000 bean samples grind in a 32 ounce "Mason" jar for 1 minute, on a blender at high speed. Shake jar to mix, then repeat the grinding a second time. Alternatively, pass through an appropriate mill.
- Thaw any frozen standard extracts (prepared according to the instructions on page 1).

*NOTE:* Thoroughly clean the grinding and sieving equipment between each sample to avoid cross-contamination.

- 1. Pour the entire ground sample onto a 40-mesh sieve. Sieve until a 20 to 50 gram sample has passed through. Weigh at least 20 grams of sieved ground soy sample into a jar or cup.
- 2. Add 100 mL of water to each 20 gram sample. For all other sample sizes, add water at the rate of 5 mL per gram of grain. Cap and shake vigorously by hand or vortex for 20-30 seconds. Let stand at room temperature for one hour to extract. Mix again at the end of the hour.
- 3. Clarify the extracts by centrifuging at 5000 x g for 5 minutes. Insert a pipette tip below any floating lipid layer and above the precipitate to remove the clarified sample.
- 4. Dilute the **sample** extract 1:50 in Wash Buffer: mix 20 μL clarified extract in 980 μL Wash Buffer. Sample extracts must be analyzed on the day they were extracted.
- 5. Dilute each thawed **standard** extract 1:5 in Wash Buffer: mix 100 μL extract plus 400 μL Wash Buffer. **NOTE:** Thawed standard extracts should be used within 48 hours, and refrigerated when not in use.

Standards and samples are now ready to be added to the assay plate. Follow the instructions as described in the section on page 5 entitled "How to Run the Assay." For a quantitative assay, use duplicate wells for each standard and sample.

## How to Interpret the Results

#### Spectrophotometric Measurement

- 1. Set the wavelength of the microtiter plate reader to 450 nanometers (nm). If it has dual wavelength capability, use 600, 630 or 650 nm as the reference wavelength.
- 1. Set the plate reader to blank on the RR Negative soy powder Standard wells (this should automatically subtract the mean optical density (OD) of the RR Negative soy powder Standard wells from each other Standard and sample OD). If the reader cannot do this, it must be done manually.
- 2. General test criteria:

The mean OD of the RR Negative soy powder Standard wells should not exceed 0.2. The coefficient of variance (%CV) of the duplicate Standard and sample wells should not exceed 15%:

%CV = <u>std. deviation of ODs</u> x 100 Mean OD 3. For a quantitative assay, a quadratic (or polynomial) curve fit for the standard curve should be used if the microtiter plate reader you are using has data reduction capabilities. If not, calculate the results manually as described in the "How to Calculate the Quantitative Results" section.

**NOTE:** Soy samples containing more than 10% Roundup Ready soy may show decreasing ODs with increasing concentration. Do not attempt to extrapolate sample concentrations beyond the range of the standard curve generated in this kit.

#### How to Interpret the Qualitative Results

Compare the ODs of the sample extracts to those of the Standards to obtain an estimate of the % RR sample. Samples with ODs greater than that of the lowest standard are considered positive. Those with OD's lower than that of the lowest standard contain less than 0.1% RR1 Soy or less than 0.2% RR2 Soy.

#### How to Calculate the Quantitative Results

- 1. After reading the wells, average the OD of each set of Standards and samples, and subtract the average OD of the RR Negative soy powder Standard wells from all (if your reader has not automatically done so).
- 2. Graph the mean OD of each Standard against its % RR content with a quadratic curve fit.
- 3. Determine the % RR content of each sample by finding its OD value and the corresponding concentration level on the graph.
- 4. Interpolation of sample concentration is only possible if the OD of the sample falls within the range of OD's of the Standards.

If the OD of a sample is <u>lower</u> than that of the lowest Standard, the sample must be reported as <u>less than</u> 0.1% RR1 soy or 0.2% RR2 soy.

If the OD of a sample is <u>higher</u> than that of the highest Standard, the sample must be reported as <u>greater than</u> 2% RR1 Soy or 4% RR2 soy.

If a concentration must be determined for these high level samples, dilute the sample extract 1:10 more than executed in the original assay, in Wash Buffer. Run this dilution in a repeat of the assay. If the result now falls within the range of the OD's of the Standards, multiply the results from the standard curve by 10.