



1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

Product Name: TYPY
EPA Reg. No.: 55146-78
Product Type: Plant Growth Regulator
Company Name: Nufarm Americas Inc.
 11901 S. Austin Avenue
 Alsip, IL 60803
 1-800-345-3330

Telephone Numbers: For Chemical Emergency, Spill, Leak, Fire, Exposure, or Accident,
 Call CHEMTREC Day or Night: 1-800-424-9300
 For Medical Emergencies Only, Call 1-877-325-1840

This product is an EPA FIFRA registered pesticide. Some classifications on this SDS are not the same as on the FIFRA label. Certain sections are superseded by federal law governed by EPA for a registered pesticide. Please see Section 15. REGULATORY INFORMATION for explanation.

2. HAZARDS IDENTIFICATION

PHYSICAL HAZARDS:

Flammable Liquid Category 4

HEALTH HAZARDS:

Skin Irritation Category 2
 Eye Irritation Category 2A
 Specific Target Organ Toxicity Single Exposure Category 3
 Reproductive Toxicity Category 1B

ENVIRONMENTAL HAZARDS;

Hazardous to aquatic environment, acute Category 1
 Hazardous to aquatic environment, chronic Category 1

SIGNAL WORD:

DANGER

HAZARD STATEMENTS:

Combustible liquid. Causes serious eye irritation. Causes skin irritation. May cause respiratory irritation. May damage the unborn child by ingestion. Very toxic to aquatic life with long lasting effects.



PRECAUTIONARY STATEMENTS

Obtain special instructions before reuse. Do not handle until all safety precautions have been read and understood. Use personal protective equipment as required. Avoid breathing mist, vapors, or spray. Keep away from flames and hot surfaces. – No smoking. Wash thoroughly after handling. Wear protective gloves and eye protection. Use only outdoors or in a well-ventilated area. Avoid release to the environment.

IF exposed or concerned: Get medical advice. IF ON SKIN: Wash with plenty of soap and water. If skin irritation occurs: Get medical advice. Take off contaminated clothing and wash before reuse. IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. If eye irritation persists: Get medical advice. IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing. Call a POISON CENTER or doctor if you feel unwell. In case of fire: Use dry chemical, carbon dioxide, foam or water spray for extinction. Collect spillage.

Store in a well-ventilated place. Keep container tightly closed. Keep cool. Store locked up.

Dispose of contents in accordance with local, state, and federal regulations.

3. COMPOSITION / INFORMATION ON INGREDIENTS

COMPONENTS	CAS NO.	% BY WEIGHT
6-Benzylaminopurine	1214-39-7	1.7 – 1.8
Gibberellins A ₄ +A ₇	468-44-0 510-75-8	1.7 – 1.8
N-Methyl Pyrrolidone	872-50-4	91 – 96.5
Other Ingredients	Trade Secret	Trade Secret

Synonyms: Mixture containing 6-Benzylaminopurine (N⁶-Benzyladenine) (N-(phenylmethyl)-1H-purine-6-amine) and Gibberellins A₄ + A₇.

Ingredients not precisely identified are proprietary or non-hazardous. Values are not product specifications.

4. FIRST AID MEASURES

If in Eyes: Hold eye open and rinse slowly and gently with water for several minutes. Remove contact lenses, if present, continue rinsing eye. Call a poison control center or doctor for treatment advice.

If Swallowed: Call a poison control center or doctor for treatment advice. Have person sip a glass of water if able to swallow. Do not induce vomiting unless told to do so by the poison control center or doctor. Do not give anything by mouth to an unconscious person.

If Inhaled: Move person to fresh air. If breathing is difficult, administer oxygen. If symptoms develop, get medical advice.

If on Skin or Clothing: Take off contaminated clothing. Rinse skin with plenty of water for several minutes. Call a poison control center or doctor for treatment advice.

Most important symptoms/effects, acute and delayed: May cause moderate eye irritation. May cause slight skin and respiratory tract irritation. May damage the unborn child by ingestion.

Indication of immediate medical attention and special treatment needed, if necessary: Immediate medical attention should not be required.

5. FIRE FIGHTING MEASURES

Extinguishing Media: Recommended for large fires: foam or water spray. Recommended for small fires: dry chemical or carbon dioxide.

Special Fire Fighting Procedures: Firefighters should wear NIOSH approved self-contained breathing apparatus and full fire-fighting turn out gear. Dike area to prevent runoff and contamination of water sources. Dispose of fire control water later.

Unusual Fire and Explosion Hazards: Avoid generating dust; fine dust dispersed in air in sufficient concentrations, and in the presence of an ignition source, is a potential dust explosion hazard. If water is used to fight fire, contain runoff, using dikes to prevent contamination of water supplies. Dispose of fire control water later.

Hazardous Decomposition Materials (Under Fire Conditions): May produce gases such as oxides of carbon, hydrogen and nitrogen.

6. ACCIDENTAL RELEASE MEASURES

Personal Precautions: Wear appropriate protective gear for the situation. See Personal Protection information in Section 8.

Environmental Precautions: Prevent material from entering public sewer systems or any waterways. Do not flush to drain. Large spills to soil or similar surfaces may necessitate removal of topsoil. The affected area should be removed and placed in an appropriate container for disposal.

Methods for Containment: Dike spill using absorbent or impervious materials such as earth, sand or clay. Collect and contain contaminated absorbent and dike material for disposal.

Methods for Cleanup and Disposal: Pump any free liquid into an appropriate closed container. Collect washings for disposal. Decontaminate tools and equipment following cleanup. See Section 13. DISPOSAL CONSIDERATIONS for more information.

Other Information: Large spills may be reportable to the National Response Center (800-424-8802) and to state and/or local agencies.

7. HANDLING AND STORAGE

Handling:

Avoid contact with eyes or clothing. Users should wash hands before eating, drinking, chewing gum, using tobacco or using the toilet. Remove clothing immediately if pesticide gets inside. Then wash thoroughly and put on clean clothing. Remove Personal Protective Equipment (PPE) immediately after handling this product. Wash outside of gloves before removing. As soon as possible, wash thoroughly and change into clean clothing.

Storage:

Store above 32° F (0° C) and below 75°F (24°C). Keep containers tightly closed when not in use.

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

Engineering Controls:

Where engineering controls are indicated by specific use conditions or a potential for excessive exposure, use local exhaust ventilation at the point of generation.

Personal Protective Equipment:

Eye/Face Protection: To avoid contact with eyes, wear chemical goggles or shielded safety glasses. An emergency eyewash should be readily accessible to the work area.

Skin Protection: To avoid contact with skin, wear long pants, long-sleeved shirt, socks, shoes and chemical-resistant gloves, such as barrier laminate; butyl, nitrile or neoprene rubber; polyvinyl chloride; or viton. An emergency shower should be readily accessible to the work area.

Respiratory Protection: Not normally required. If vapors or mists exceed acceptable levels, wear NIOSH approved air-purifying respirator with cartridges/canisters approved for use against pesticides.

General Hygiene Considerations: Personal hygiene is an important work practice exposure control measure and the following general measures should be taken when working with or handling this material: 1) do not store, use and/or consume foods, beverages, tobacco products, or cosmetics in areas where this material is stored; 2) wash hands and face carefully before eating, drinking, using tobacco, applying cosmetics or using the toilet.

Exposure Guidelines:

Component	OSHA		ACGIH		Unit
	TWA	STEL	TWA	STEL	
6-Benzylaminopurine	NE	NE	NE	NE	
Gibberellins A ₄ +A ₇	NE	NE	NE	NE	
N-Methyl Pyrrolidone*	NE	NE	NE	NE	
Other Ingredients	NE	NE	NE	NE	

NE = Not Established

*California OSHA PEL: 1 ppm. ACGIH BEI: 100 mg/l at end of shift. AIHA WEEL 10 ppm

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance:	Clear, water white to pale yellow, liquid
Odor:	little to no odor
Odor threshold:	No data available
pH:	3.26 (1% w/w dilution in DIW)
Melting point/freezing point:	No data available
Initial boiling point and boiling range	No data available
Flash point:	166°F (74.5°C)
Evaporation rate:	No data available

Flammability (solid, gas):	No data available
Upper/lower flammability or explosive limits:	No data available
Vapor pressure:	No data available
Vapor density:	No data available
Relative density:	1.062 g/cc @ 20° C
Solubility(ies):	No data available
Partition coefficient: n-octanol/water:	No data available
Autoignition temperature:	No data available
Decomposition temperature:	No data available
Viscosity:	6.43 cSt @ 24° C

Note: Physical data are typical values, but may vary from sample to sample. A typical value should not be construed as a guaranteed analysis or as a specification.

10. STABILITY AND REACTIVITY

Reactivity: Not reactive.

Chemical Stability: This material is stable under normal handling and storage conditions.

Possibility of Hazardous Reactions: Will not occur.

Conditions to Avoid: Keep away from heat, sparks and open flame. Minimize dust generate and accumulation.

Incompatible Materials: Strong oxidizing agents: bases and acids.

Hazardous Decomposition Products: Under fire conditions may produce gases such as oxides of carbon, hydrogen and nitrogen.

11. TOXICOLOGICAL INFORMATION

Likely Routes of Exposure: Eye contact, Skin Contact

Symptoms of Exposure:

Eye Contact: Causes moderate eye irritation.

Skin Contact: Minimally toxic and slightly irritating based on toxicity studies.

Ingestion: Low toxicity based on acute oral studies.

Inhalation: Low inhalation toxicity.

Delayed, immediate and chronic effects of exposure: None reported.

Toxicological Data:

Data from laboratory studies conducted on a substantially similar product:

Oral: Rat LD₅₀: >5,000 mg/kg

Dermal: Rabbit LD₅₀: >5,000 mg/kg

Inhalation: Rat 4-hr LC₅₀: 2.13 mg/L (no mortalities at highest dose tested)

Eye Irritation: Rabbit: Moderately irritating

Skin Irritation: Rabbit: Slightly irritating

Skin Sensitization: Not a contact sensitizer in guinea pigs following repeated skin exposure.

Subchronic (Target Organ) Effects: Repeated overexposure to 6-benzylaminopurine may cause decreased body weight gains related to decrease in food consumption. In teratogenicity studies in rabbits, no maternal or fetal toxicity, or other adverse effects to the fetus were noted following repeated dosages (up to 1000 mg/kg/day) of Gibberellins A4/A7.

Carcinogenicity / Chronic Health Effects: 6-benzylaminopurine did not cause cancer in laboratory animals. Gibberellins A4/A7.

Reproductive Toxicity: In studies with animals, 6-benzylaminopurine did not cause reproductive toxicity. No data available for Gibberellins A4/A7.

Developmental Toxicity: In animal studies with 6-benzylaminopurine, developmental effects were observed at doses that were also toxic to the maternal animal. No data available for Gibberellins A4/A7. N-methyl-pyrrolidone has shown to have negative effects on developing fetuses in animal studies.

Genotoxicity: Tests with 6-benzylaminopurine have shown no evidence of mutagenicity. Tests with Gibberellins A4/A7 show no evidence of mutagenicity.

Assessment Carcinogenicity: None listed with ACGIH, IARC, NTP or OSHA.

Component	Regulatory Agency Listing As Carcinogen			
	ACGIH	IARC	NTP	OSHA
6-Benzylaminopurine	No	No	No	No

Gibberellins A4+A7	No	No	No	No
N-Methyl Pyrrolidone	No	No	No	No
Other ingredients	No	No	No	No

12. ECOLOGICAL INFORMATION

Ecotoxicity:

Data on 6-Benzyladenine:

96-hour LC ₅₀ Rainbow Trout:	21.4 mg/l	Bobwhite Quail Acute Oral LC ₅₀ :	>1,599 mg/kg
48-hour EC ₅₀ Daphnia:	20.5 mg/l	Bobwhite Quail Dietary LC ₅₀ :	>5,620 ppm
96-hour Bee LD ₅₀ :	>25 µg/bee		

Data on Gibberellic Acids:

96-hour LC ₅₀ Rainbow Trout:	>150 ppm	Bobwhite Quail Oral LD ₅₀ :	>2,250 mg/kg
48-hour EC ₅₀ Daphnia:	>143 ppm	Bobwhite Quail Dietary LC ₅₀ :	>4,640 ppm
48-hour LD ₅₀ Bee:	>25.0 µg/bee		

Environmental Fate:

6-Benzyladenine

Degradation (biotic): Readily biodegradable

Degradation (abiotic): Hydrolytically stable

Bioaccumulation: log Pow = 2.16

Biodegradable under typical conditions. May degrade more slowly in an aquatic environment with low biological activity

Gibberellic Acids degrade rapidly and do not accumulate in soil, sediment or water.

13. DISPOSAL CONSIDERATIONS

Waste Disposal Method:

Wastes resulting from the use of this product may be disposed of on site or at an approved waste disposal facility.

Container Handling and Disposal:

Nonrefillable Containers 5 Gallons or Less

Nonrefillable container. Do not reuse or refill this container. Offer for recycling if available. Triple rinse container (or equivalent) promptly after emptying.

Triple rinse as follows: Empty the remaining contents into application equipment or a mix tank and drain for 10 seconds after the flow begins to drip. Fill the container 1/4 full with water and recap. Shake for 10 seconds. Pour rinsate into application equipment or a mix tank or store rinsate for later use or disposal. Drain for 10 seconds after the flow begins to drip. Repeat this procedure two more times. Then offer for recycling or reconditioning, or puncture and dispose of in a sanitary landfill, or by other procedures approved by State and local authorities. Plastic containers are also disposable by incineration, or, if allowed by State and local authorities, by burning. If burned stay out of smoke.

Nonrefillable containers larger than 5 gallons

Nonrefillable container. Do not reuse or refill this container. Offer for recycling if available. If recycling or reconditioning not available, puncture and dispose of in a sanitary landfill, or by other procedures approved by State and local authorities. Plastic containers are also disposable by incineration, or, if allowed by State and local authorities, by burning. If burned stay out of smoke. Triple rinse or pressure rinse container (or equivalent) promptly after emptying.

Triple rinse as follows: Empty the remaining contents into application equipment or a mix tank. Fill the container 1/4 full with water. Replace and tighten closures. Tip container on its side and roll it back and forth, ensuring at least one complete revolution, for 30 seconds. Stand the container on its end and tip it back and forth several times. Turn the container over onto its other end and tip it back and forth several times. Empty the rinsate into application equipment or a mix tank or store rinsate for later use or disposal. Repeat this procedure two more times.

Pressure rinse as follows: Empty the remaining contents into application equipment or a mix tank and continue to drain for 10 seconds after the flow begins to drip. Hold container upside down over application equipment or mix tank or collect rinsate for later use or disposal. Insert pressure-rinsing nozzle in the side of

the container, and rinse at about 40 psi for at least 30 seconds. Drain for 10 seconds after the flow begins to drip.

Refillable containers larger than 5 gallons

Refillable container. Refill this container with pesticide only. Do not reuse this container for any other purpose. Cleaning the container before final disposal is the responsibility of the person disposing of the container. Cleaning before refilling is the responsibility of the refiller. To clean the container before final disposal, empty the remaining contents from this container into application equipment or a mix tank. Fill the container about 10% full with water. Agitate vigorously or recirculate water with the pump for two minutes. Pour or pump rinsate into application equipment or rinsate collection system. Repeat this rinsing procedure two more times.

14. TRANSPORTATION INFORMATION

Follow the precautions indicated in Section 7: HANDLING AND STORAGE of this SDS.

DOT (in non-bulk packages):

Non Regulated

DOT (in bulk packages):

NA1993, Combustible Liquid, n.o.s. (n-methyl-pyrrolidone), III

IMDG:

UN3082, Environmentally hazardous substance, liquid, n.o.s. (Gibberellic Acids), 9, III

IATA:

UN3082, Environmentally hazardous substance, liquid, n.o.s. (Gibberellic Acids), 9, III

15. REGULATORY INFORMATION**EPA FIFRA INFORMATION**

This chemical is a pesticide product registered by the United States Environmental Protection Agency and is subject to certain labeling requirements under federal pesticide law. These requirements differ from the classification criteria and hazard information required for safety data sheets (SDS), and for workplace labels of non-pesticide chemicals. The hazard information required on the pesticide label is reproduced below. The pesticide label also includes other important information, including directions for use.

WARNING. Causes substantial but temporary eye injury. May be fatal if inhaled or absorbed through the skin. Do not breathe vapor or mist.

U.S. FEDERAL REGULATIONS

TSCA Inventory: This product is exempted from TSCA because it is solely for FIFRA regulated use.

SARA Hazard Notification/Reporting:**Hazard Categories Under Criteria of SARA Title III Rules (40 CFR Part 370):**

Acute Health, Chronic Health, Fire Hazard

Section 313 Toxic Chemical(s):

N-Methyl-2-pyrrolidinone (CAS No. 872-50-4), 80.0% by weight in product

Reportable Quantity (RQ) under U.S. CERCLA:

None

RCRA Waste Code:

Under RCRA, it is the responsibility of the product user to determine at the time of disposal, whether a material containing the product or derived from the product should be classified as a hazardous waste.

State Information:

Other state regulations may apply. Check individual state requirements.

California Proposition 65: WARNING. This product contains chemicals known to the State of California to cause birth defects or other reproductive harm.

16. OTHER INFORMATION**National Fire Protection Association (NFPA) Hazard Rating:**

Rating for this product: Health: 2 Flammability: 2 Reactivity: 0

SAFETY DATA SHEET

TYPY

Hazards Scale: 0 = Minimal 1 = Slight 2 = Moderate 3 = Serious 4 = Severe

This Safety Data Sheet (SDS) serves different purposes than and DOES NOT REPLACE OR MODIFY THE EPA-ACCEPTED PRODUCT LABELING (attached to and accompanying the product container). This SDS provides important health, safety and environmental information for employers, employees, emergency responders and others handling large quantities of the product in activities generally other than product use, while the labeling provides that information specifically for product use in the ordinary course.

Use, storage and disposal of pesticide products are regulated by the EPA under the authority of the Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA) through the product labeling, and all necessary and appropriate precautionary, use, storage, and disposal information is set forth on that labeling. It is a violation of Federal law to use a pesticide product in any manner not prescribed on the EPA-accepted label.

Although the information and recommendations set forth herein (hereinafter "Information") are presented in good faith and believed to be correct as of the date hereof, Nufarm Americas Inc. makes no representations as to the completeness or accuracy thereof. Information is supplied upon the condition that the persons receiving same will make their own determination as to its suitability for their purposes prior to use. In no event will Nufarm Americas Inc. be responsible for damages of any nature whatsoever resulting from the use of or reliance upon Information. NO REPRESENTATIONS OR WARRANTIES, EITHER EXPRESS OR IMPLIED, OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE OR OF ANY OTHER NATURE ARE MADE HEREUNDER WITH RESPECT TO INFORMATION OR THE PRODUCT TO WHICH INFORMATION REFERS AND ALL SUCH WARRANTIES ARE HEREBY SPECIFICALLY DISCLAIMED.

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