City of Santa Barbara
Integrated Pest Management Advisory Committee
MATERIAL EXEMPTION REQUEST FOR PESTICIDE APPLICATION

Name ___Erin Markey_____ Department ____Parks and Rec- Creeks Div__Phone _805-560-7549_____

Pesticide Applicator (employee or company) ____Enviroscaping_____ Phone ___805-455-8405_____

Application Site __ Various locations next to creeks where Arundo was previously treated _____

Specific Location __ Arroyo Burro Creek (Hidden Valley Park, Arroyo Burro Open Space, private parcels along Alan Road), lower Mission Creek, Lower Sycamore Creek ___

Date(s) of Application ___November 2022 and September/October 2023____ Date of Request ___10/6/2022__

Product Name ___Roundup Custom or equivalent_____ Active Ingredient ___ Glyphosate_____

Product Name ___Polaris, Habitat or equivalent_____ Active Ingredient ___Imazapyr_____

Type: ❑ One-time X Programmatic ❑ Emergency

Number of Applications: ❑ One X Other __One application per year, retreatment expected in subsequent years.

Product type: X Herbicide ❑ Insecticide ❑ Fungicide ❑ Other _____

Application: ❑ Ornamental ❑ Sports Field ❑ Golf Course ☐ Vector Control ❑ Park Tree ❑ Street Tree
❑ Airport Runways ❑ Right of Way ❑ City Facility X Other _ Invasive removal_____

Is the pesticide on the *Approved Materials List*? ❑ No X Yes If yes, provide the color __Red and Yellow_____

If the pesticide is not on the *Approved Materials List*, provide the following information. Please use the Material Selection Criteria and work with a Certified Pesticide Applicator to determine the estimated color.

EPA Reg #_____ Signal _____ Estimated Color _____

Restricted ❑ No ❑ Yes/Describe _____

P Waste _____ PBT _____ WA PBT _____ Persistent _____ Mobil _____

Cancer _____ Repro _____ Neuro _____ Endocrine _____

Bird _____ Fish _____ Bees _____ Wildlife _____

Please attach product label and MSDS to this form.

Describe the pest problem.
Arundo donax, also known as giant reed, is an invasive, exotic plant that causes negative impacts to creek habitat and ecological function. Arundo forms dense, monotypic stands that can prevent the natural recruitment of native vegetation, displace existing native habitat, and reduce food resources for wildlife. The structure of arundo does not shade the creek bed as well as native trees do.

Arundo can also pose increased fire and flooding risks to public safety. This species is very difficult to remove by hand or with machinery because small fragments can re-sprout and soil disturbance caused by these removal methods can lead to increased erosion of creek banks.

Describe the overall management goals and objectives for this site.
The goal is to completely eliminate arundo from the City's watersheds and increase native tree and shrub diversity and cover where arundo currently exists. In small sites natives will be allowed to recolonize the area, in large stands native plantings have and will occur. Keeping other non-native invasive weeds out of the restoration site is another project goal, but will not include the use of herbicide. Instead, mulching and hand removal will ensure other invasive species do not recolonize the sites once arundo is removed.

What is the damage or action threshold for this pest at this site? (The action threshold is the number of pests or level of damage beyond which management action should be taken.)
Any live arundo plant material will trigger removal action. Arundo has been targeted for removal from by the Creeks Division for several years. Large stands have been removed from the Arroyo Burro Watershed. Spot retreatment or

resprouts will be required to ensure complete eradication. Arundo has an extremely rapid growth rate and becomes increasingly difficult to remove once established, even when herbicides are used. It is anticipated that newly established arundo (meaning small plant fragments that have just sprouted but not extensively rooted) will be removed by hand and without the use of herbicide.

Describe the monitoring of the pest and potential predators that was conducted and the control methods previously used at the site.
Creeks Division staff conducted detailed arundo mapping surveys of the Mission and Sycamore watersheds in spring 2008. An initial watershed mapping of the Arroyo Burro watershed was conducted in 2009. Additional Mapping was conducted in Sycamore creek in 2019. Since then annual creek walks of retreatment site occurs in the spring.

The Creeks staff formerly consulted with the Santa Barbara County Weed Management Area and other on the ground practitioners like Channel Islands Restoration to identify the most successful arundo control methods. The watershed wide removal effort started in 2008 in Sycamore Creek with sites in the upper portions of the watershed being treated first and moving downstream. Mission Creek was targeted next followed by Arroyo Burro. There are still stands in lower Mission and Sycamore Creeks that need to be treated. Several will be mechanically removed as part of flood improvement projects. Once those projects are complete the Creeks Division will target any remaining stands.

Arundo has been eradicated successfully at sites within the City under the previously granted programmatic exemption for glyphosate and Imazapyr. Since arundo grows back rapidly after being cut, contracted staff used glyphosate (Roundup) and in limited areas Imazapyr(Habitat/Polaris) to control arundo near Mission Creek, Arroyo Burro, Sycamore Creek, and the Santa Barbara Zoo. An exemption was also granted for glyphosate use during the Arroyo Burro Estuary restoration project in 2006 and the method proved very successful.

Describe how the product would be applied including frequency, concentration, and method of application.
Glyphosate or Imazapyr would be applied using the “cut-stump-paint” method. This entails cutting each arundo stalk then immediately brushing or sponging on undiluted herbicide. No surfactant would be used since the plant’s phloem will be exposed when the stalk is cut, allowing direct entry of the herbicide into the plant tissue. Blue dye would be used in the herbicide solution to indicate treated stumps. The glyphosate brand name to be applied is Roundup, Imazapyr is either Habitat or Polaris. Both are approved for use in riparian areas and aquatic environments. It is estimated that remaining Arundo re-sprouts would need to be treated 2-3 times over a three year period.

Arundo would initially be treated in Mission and Arroyo Burro watersheds in November 2022 and September and October 2023, and then retreated one more in the fall during either of the following two years.

What non-target impacts are anticipated?
The painting or brushing of glyphosate/Imazapyr on freshly cut stumps will minimize pesticide drift to the maximum extent possible. Blue dye will lessen the amount of excess application of herbicide and accidental contact with treated stumps. It is know that Imazapyr resides in soil longer and can potentially damage nearby vegetation. Therefore imazapyr will only be employed in larger stands where native vegetation is absent.

How does the use of this product help achieve the site management goals? Note if this is curative or preventative.
This is a curative method since the arundo already exists on these sites and the management goal is complete arundo removal. Glyphosate allows treatment of arundo without extensive use of hand tools and heavy machinery, which typically lead to increased creek bank instability and soil erosion. Using limited and strategic application of herbicides will allow the dead root mass of arundo to stay in place to add to bank stability. Control of arundo will achieve site management goals by reducing non-native plant cover and allowing for increased growth of native plants.

How will the effectiveness of this product be monitored? Include expected results and indicators of success.
Short-term success will be measured using visual observations of the site to determine if the target weed species has been eradicated from the site. No re-growth of the target species will be considered a success. Long-term success will be measured by the amount of native plant cover and diversity.

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Describe what precautions would be used for application. For example consider restricting access, distance from a creek or body of water, degree of runoff, weather conditions, etc.
The sites on Arroyo Burro will be accessed inside the fenced restoration areas at Hidden Valley Park and the Arroyo Burro Open Space. Signage will be posted to inform the public of application activities. These sites occur within 20 feet of the creek so special precautions to ensure no application when wind speeds area above 10 miles per hour, or precipitation is forecasted in the next 48 hours. The cut-stump-paint method will reduce the amount of pesticide overspray and drift.

List alternatives considered, alternatives implemented and why they were eliminated.
Mechanical/hand removal: this creates excessive soil disturbance and compaction (if back-hoes are used), increases erosion, and could potentially damage nearby tree roots.

Mowing: arundo grows back rapidly after being mowed and is ineffective

Tarping: tarps are often torn and punctured, rendering them ineffective, when used on arundo. The cut stumps of arundo contribute to damaging the tarps.

Spraying herbicide: the potential for herbicide drift and impacts to adjacent vegetation is too great in these confined locations.

Biocontrol: no control agents are available at this time.

Justification: describe why is applying this pesticide is the best solution and why a less-hazardous chemical, non-chemical option or taking no action is not feasible.
The application of herbicide on Arundo minimizes soil erosion and disturbance in sensitive creek side areas. There are no known less-hazardous chemicals that will kill arundo since it is able to re-sprout vigorously from the rhizome and stem fragments. By taking no action, the arundo will most likely re-spread, creating fire and flooding risks, and likely lead to more native habitat being invaded and displaced.

Was outside expertise utilized? ❑ No X Yes / Describe
Alternative techniques for weed control as well as advice for glyphosate and imazapyr application were taken from the Santa Barbara County Weed Management Area, University of California Statewide Integrated Pest Management Program, UCSB River Lab – Dr. Tom Dudley, Channel Islands Restoration – Ken Owen, and the California Invasive Plant Council.

Describe future plans to prevent using the chemical again.
Visual inspection of the sites and creeks will ensure arundo will not reinvade and establish in the treated areas. Small individuals of arundo will be removed by hand before they are able to root. Eventually total eradication from the City.

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Signatures_____ _____

Department IPM Coordinator **City IPM Coordinator**

Completed by the City of Santa Barbara IPM Staff

Vote Tally ____ Disposition: ❑ Approved ❑ Denied/Reason _____

If approved, follow the attached best management practices.

Comments:

SAFETY DATA SHEET

ROUNDUP CUSTOM® FOR AQUATIC & TERRESTRIAL USE

Version 1.0 / USA
102000037603

Revision Date: 09/25/2020
Print Date: 10/02/2020

SECTION 1: IDENTIFICATION OF THE SUBSTANCE/MIXTURE AND OF THE COMPANY/UNDERTAKING

Product identifier

Trade name	ROUNDUP CUSTOM® FOR AQUATIC & TERRESTRIAL USE
Product code (UVP)	86738473
SDS Number	102000037603
EPA Registration No.	524-343

Relevant identified uses of the substance or mixture and uses advised against

Use	Herbicide
Restrictions on use	See product label for restrictions.

Information on supplier

Supplier	Bayer Environmental Science A division of Bayer CropScience LP 5000 Centregreen Way, Suite 400 Cary, NC 27513 USA
Responsible Department	Email: SDSINFO.BCS-NA@bayer.com

Emergency telephone no.

Emergency Telephone Number (24hr/ 7 days)	1-800-334-7577
Product Information Telephone Number	1-800-331-2867

SECTION 2: HAZARDS IDENTIFICATION

Classification in accordance with regulation HCS 29CFR §1910.1200
This material is not hazardous under the criteria of the Federal OSHA Hazard Communication Standard 29CFR 1910.1200.

Hazards Not Otherwise Classified (HNOC)
No physical hazards not otherwise classified.
No health hazards not otherwise classified.

SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS

Hazardous Component Name	CAS-No.	Concentration % by weight
Isopropylamine salt of glyphosate	38641-94-0	53.8

SECTION 4: FIRST AID MEASURES

Description of first aid measures

General advice
When possible, have the product container or label with you when calling a poison control center or doctor or going for treatment.

Inhalation
Move to fresh air. If person is not breathing, call 911 or an ambulance, then give artificial respiration, preferably mouth-to-mouth if possible. Call a physician or poison control center immediately.

Skin contact
Wash off immediately with plenty of water for at least 15 minutes. Take off contaminated clothing and shoes immediately. Call a physician or poison control center immediately.

Eye contact
Hold eye open and rinse slowly and gently with water for 15-20 minutes. Remove contact lenses, if present, after the first 5 minutes, then continue rinsing eye. Call a physician or poison control center immediately.

Ingestion
Call a physician or poison control center immediately. Rinse out mouth and give water in small sips to drink. DO NOT induce vomiting unless directed to do so by a physician or poison control center. Never give anything by mouth to an unconscious person. Do not leave victim unattended.

Most important symptoms and effects, both acute and delayed

Symptoms
To date no symptoms are known.

Indication of any immediate medical attention and special treatment needed

Risks
This product is not a cholinesterase inhibitor.

Treatment
Treatment with atropine and oximes is not indicated. Appropriate supportive and symptomatic treatment as indicated by the patient's condition is recommended.

SECTION 5: FIREFIGHTING MEASURES

Extinguishing media

Suitable
Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.

Unsuitable
High volume water jet

Special hazards arising from the substance or mixture	In the event of fire the following may be released:, Carbon monoxide (CO), Carbon dioxide (CO2), Nitrogen oxides (NOx), Oxides of phosphorus
Advice for firefighters	
Special protective equipment for firefighters	In the event of fire and/or explosion do not breathe fumes. Firefighters should wear NIOSH approved self-contained breathing apparatus and full protective clothing. Equipment should be thoroughly decontaminated after use.
Further information	Keep out of smoke. Fight fire from upwind position. Cool closed containers exposed to fire with water spray. Do not allow run-off from fire fighting to enter drains or water courses.
Flash point	does not flash
Auto-ignition temperature	No data available
Lower explosion limit	Not applicable
Upper explosion limit	Not applicable
Explosivity	Not explosive

SECTION 6: ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures

Precautions	Use personal protective equipment. Keep unauthorized people away. Avoid contact with spilled product or contaminated surfaces.

Methods and materials for containment and cleaning up

Methods for cleaning up	Soak up with inert absorbent material (e.g. sand, silica gel, acid binder, universal binder, sawdust). Collect and transfer the product into a properly labelled and tightly closed container. Keep in suitable, closed containers for disposal. Clean contaminated floors and objects thoroughly, observing environmental regulations.
Additional advice	Use personal protective equipment. If the product is accidentally spilled, do not allow to enter soil, waterways or waste water canal. Do not allow product to contact non-target plants.
Reference to other sections	Information regarding safe handling, see section 7. Information regarding personal protective equipment, see section 8. Information regarding waste disposal, see section 13.

SECTION 7: HANDLING AND STORAGE

Precautions for safe handling

Advice on safe handling	Avoid contact with skin, eyes and clothing. Ensure adequate ventilation.
Hygiene measures	Wash hands thoroughly with soap and water after handling and before eating, drinking, chewing gum, using tobacco, using the toilet or applying cosmetics. Remove Personal Protective Equipment (PPE) immediately after handling this product. Remove soiled clothing immediately and clean thoroughly before using again. Wash thoroughly and put on clean clothing. Keep working clothes separately. Garments that cannot be cleaned must be destroyed (burnt).

Conditions for safe storage, including any incompatibilities

Requirements for storage areas and containers	Store in original container. Store in a cool, dry place and in such a manner as to prevent cross contamination with other crop protection products, fertilizers, food, and feed. Store in a place accessible by authorized persons only. Reacts with galvanised steel or unlined mild steel to produce hydrogen, a highly flammable gas that could explode. Protect from freezing. Partial crystallization may occur on prolonged storage below the minimum storage temperature. Freezing will affect the physical condition but will not damage the material. Thaw and mix before using.
Advice on common storage	Keep away from food, drink and animal feedingstuffs.

SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

Control parameters

No known occupational limit values.

Exposure controls

Personal protective equipment
In normal use and handling conditions please refer to the label and/or leaflet. In all other cases the following recommendations would apply.

Respiratory protection	When respirators are required, select NIOSH approved equipment based on actual or potential airborne concentrations and in accordance with the appropriate regulatory standards and/or industry recommendations.
Hand protection	Please observe the instructions regarding permeability and breakthrough time which are provided by the supplier of the gloves. Also take into consideration the specific local conditions under which the product is used, such as the danger of cuts, abrasion, and the contact time. Chemical-resistant gloves (barrier laminate, butyl rubber, nitrile rubber or Viton) Wash gloves when contaminated. Dispose of when contaminated inside, when perforated or when contamination on the outside cannot be removed. Wash hands frequently and always before eating,

	drinking, smoking or using the toilet.
Eye protection	Use tightly sealed goggles and face protection.
Skin and body protection	Wear long-sleeved shirt and long pants and shoes plus socks.
General protective measures	Follow manufacturer's instructions for cleaning/maintaining PPE. If no such instructions for washables, use detergent and warm/tepid water. Keep and wash PPE separately from other laundry.

SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

Information on basic physical and chemical properties

Form	Liquid, clear
Colour	colorless to light yellow or brown
Odour	odourless
Odour Threshold	No data available
pH	4.4 - 4.8 (6.3 %)
Melting point/range	No data available
Boiling Point	No data available
Flash point	does not flash
Flammability	No data available
Auto-ignition temperature	No data available
Minimum ignition energy	Not applicable
Self-accelarating decomposition temperature (SADT)	No data available
Upper explosion limit	Not applicable
Lower explosion limit	Not applicable
Vapour pressure	Not applicable
Evaporation rate	No data available
Relative vapour density	No significant volatility.
Relative density	1.206 (20 °C)
Density	1.21 g/cm³ (20 °C)
Water solubility	completely soluble
Partition coefficient: n-	Glyphosate: log Pow: -3.2

octanol/water

Viscosity, dynamic	No data available
Viscosity, kinematic	No data available
Oxidizing properties	No data available
Explosivity	Not explosive
Other information	Further safety related physical-chemical data are not known.

SECTION 10: STABILITY AND REACTIVITY

Reactivity	
Thermal decomposition	Stable under normal conditions.
Chemical stability	Stable under recommended storage conditions.
Possibility of hazardous reactions	Reacts with galvanised steel or unlined mild steel to produce hydrogen, a highly flammable gas that could explode.
Conditions to avoid	Extremes of temperature and direct sunlight.
Incompatible materials	Galvanised steel, Unlined mild steel
Hazardous decomposition products	No decomposition products expected under normal conditions of use.

SECTION 11: TOXICOLOGICAL INFORMATION

Exposure routes	Skin contact, Eye contact, Inhalation
Immediate Effects	
Eye	Not expected to produce significant adverse effects when recommended use instructions are followed.
Skin	Not expected to produce significant adverse effects when recommended use instructions are followed.
Ingestion	Not expected to produce significant adverse effects when recommended use instructions are followed.
Inhalation	Not expected to produce significant adverse effects when recommended use instructions are followed.

Information on toxicological effects

Acute oral toxicity	LD50 (Rat) > 5,000 mg/kg Test conducted with a similar formulation. No deaths

Acute inhalation toxicity	LC50 (Rat) > 4.24 mg/l Exposure time: 4 h Determined in the form of liquid aerosol. Highest attainable concentration. No deaths Test conducted with a similar formulation.
Acute dermal toxicity	LD50 (Rabbit) > 5,000 mg/kg Test conducted with a similar formulation. No deaths
Skin corrosion/irritation	No skin irritation (Rabbit) Test conducted with a similar formulation.
Serious eye damage/eye irritation	No eye irritation (Rabbit) Test conducted with a similar formulation.
Respiratory or skin sensitisation	Skin: Non-sensitizing. (Guinea pig) OECD Test Guideline 406, Buehler test Test conducted with a similar formulation.

Assessment STOT Specific target organ toxicity – single exposure

Glyphosate: Based on available data, the classification criteria are not met.

Assessment STOT Specific target organ toxicity – repeated exposure

Glyphosate did not cause specific target organ toxicity in experimental animal studies.

Assessment mutagenicity

Glyphosate was not mutagenic or genotoxic in a battery of in vitro and in vivo tests.

Assessment carcinogenicity

Glyphosate was not carcinogenic in lifetime feeding studies in rats and mice.
Important comment to IARC Listing:, Our expert opinion is that classification as a carcinogen is not warranted.

ACGIH

None.

NTP

None.

IARC

Isopropylamine salt of glyphosate	38641-94-0	Overall evaluation: 2A

OSHA

None.

Assessment toxicity to reproduction

Glyphosate did not cause reproductive toxicity in a two-generation study in rats.

Assessment developmental toxicity

Glyphosate did not cause developmental toxicity in rats and rabbits.

Aspiration hazard

Based on available data, the classification criteria are not met.

SECTION 12: ECOLOGICAL INFORMATION

Toxicity to fish	LC50 (Oncorhynchus mykiss (rainbow trout)) > 1,000 mg/l static test; Exposure time: 96 h Test conducted with a similar formulation. LC50 (Lepomis macrochirus (Bluegill sunfish)) > 1,000 mg/l static test; Exposure time: 96 h Test conducted with a similar formulation.
Chronic toxicity to fish	Oncorhynchus mykiss (rainbow trout) flow-through test NOEC: >= 9.63 mg/l The value mentioned relates to the active ingredient glyphosate.
Toxicity to aquatic invertebrates	EC50 (Daphnia magna (Water flea)) 930 mg/l static test; Exposure time: 48 h Test conducted with a similar formulation.
Chronic toxicity to aquatic invertebrates	EC50 (Daphnia magna (Water flea)): 12.5 mg/l Exposure time: 21 d The value mentioned relates to the active ingredient glyphosate.
Toxicity to aquatic plants	EbC50 (Raphidocelis subcapitata (freshwater green alga)) 72.9 mg/l static test; Exposure time: 72 h The value mentioned relates to the active ingredient glyphosate. NOEC (Raphidocelis subcapitata (freshwater green alga)) 26.4 mg/l static test; Exposure time: 72 h The value mentioned relates to the active ingredient glyphosate.
Biodegradability	Glyphosate: Not rapidly biodegradable
Koc	Glyphosate: Koc: 6920
Bioaccumulation	Glyphosate: Does not bioaccumulate.
Mobility in soil	Glyphosate: Immobile in soil

Results of PBT and vPvB assessment

PBT and vPvB assessment	Glyphosate: This substance is not considered to be persistent, bioaccumulative and toxic (PBT). This substance is not considered to be very persistent and very bioaccumulative (vPvB).
Additional ecological	No further ecological information is available.

information

Environmental precautions

Apply this product as specified on the label.
Do not apply directly to water, to areas where surface water is present or to intertidal areas below the mean high water mark.
Do not contaminate surface or ground water by cleaning equipment or disposal of wastes, including equipment wash water.
Retain and dispose of contaminated wash water.

SECTION 13: DISPOSAL CONSIDERATIONS

Waste treatment methods

Product

It is best to use all of the product in accordance with label directions. If it is necessary to dispose of unused product, please follow container label instructions and applicable local guidelines.
Do not contaminate water, food, or feed by disposal.
Follow all local/regional/national/international regulations.

Contaminated packaging

Follow advice on product label and/or leaflet.
Do not re-use empty containers.
Triple rinse containers.
Puncture container to avoid re-use.
Completely empty container into application equipment, then dispose of empty container in a sanitary landfill, by incineration or by other procedures approved by state/provincial and local authorities.
If burned, stay out of smoke.

RCRA Information

Characterization and proper disposal of this material as a special or hazardous waste is dependent upon Federal, State and local laws and are the user's responsibility. RCRA classification may apply.

SECTION 14: TRANSPORT INFORMATION

According to national and international transport regulations this material is not classified as dangerous goods / hazardous material.

SECTION 15: REGULATORY INFORMATION

EPA Registration No. 524-343
US Federal Regulations
TSCA list
Water 7732-18-5

US. Toxic Substances Control Act (TSCA) Section 12(b) Export Notification (40 CFR 707, Subpt D)
No export notification needs to be made.
SARA Title III - Section 302 - Notification and Information
Not applicable.
SARA Title III - Section 313 - Toxic Chemical Release Reporting
None.

US States Regulatory Reporting
CA Prop65
This product does not contain any substances known to the State of California to cause cancer.

This product does not contain any substances known to the State of California to cause reproductive harm.

US State Right-To-Know Ingredients
None.

Environmental
CERCLA
None.
Clean Water Section 307(a)(1)
None.
Safe Drinking Water Act Maximum Contaminant Levels
None.

EPA/FIFRA Information:
This chemical is a pesticide product registered by the 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, and for workplace labels of non-pesticide chemicals. Following is the hazard information required on the pesticide label:

Signal word: Caution!

SECTION 16: OTHER INFORMATION

Abbreviations and acronyms

49CFR	Code of Federal Regulations, Title 49
ACGIH	US. ACGIH Threshold Limit Values
ATE	Acute toxicity estimate
CAS-Nr.	Chemical Abstracts Service number
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
EINECS	European inventory of existing commercial substances
ELINCS	European list of notified chemical substances
IARC	International Agency for Research on Cancer
IATA	International Air Transport Association
IMDG	International Maritime Dangerous Goods

N.O.S.	Not otherwise specified
NTP	US. National Toxicology Program (NTP) Report on Carcinogens
OECD	Organization for Economic Co-operation and Development
TDG	Transportation of Dangerous Goods
TWA	Time weighted average
UN	United Nations
WHO	World health organisation

NFPA 704 (National Fire Protection Association):

Health - 0	Flammability - 1	Instability - 1	Others - none

HMIS (Hazardous Materials Identification System, based on the Third Edition Ratings Guide)

Health - 0	Flammability - 1	Physical Hazard - 1	PPE -

0 = minimal hazard, 1 = slight hazard, 2 = moderate hazard, 3 = severe hazard, 4 = extreme hazard

Reason for Revision: New Safety Data Sheet.

Revision Date: 09/25/2020

This information is provided in good faith but without express or implied warranty. The customer assumes all responsibility for safety and use not in accordance with label instructions. The product names are registered trademarks of Bayer.