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SAFETY DATA SHEET

SECTION 1. CHEMICAL IDENTIFICATION

CATALOG #:	02285
NAME:	<i>N</i> -Bromosuccinimide
SYNONYMS:	NBS 1-Bromo-2,5-pyrrolidinedione
24 HOUR EMERGENCY TELEPHONE:	(800) 535-5053(USA) 352-323-3500 (INTERNATIONAL)
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SECTION 2. HAZARDS IDENTIFICATION

CLASSIFICATION OF THE SUBSTANCE OR MIXTURE

GHS CLASSIFICATION IN ACCORDANCE WITH 29 CFR 1910 (OSHA HCS)

OXIDIZING SOLIDS (CATEGORY 3), H272
CORROSIVE TO METALS (CATEGORY 1), H290
SKIN IRRITATION (CATEGORY 2), H315
EYE IRRITATION (CATEGORY 2A), H319
SKIN SENSITIZATION (SUB-CATEGORY 1B), H317
GERM CELL MUTAGENICITY (CATEGORY 2), H341
SHORT-TERM (ACUTE) AQUATIC HAZARD (CATEGORY 1), H400

FOR THE FULL TEXT OF THE H-STATEMENTS MENTIONED IN THIS SECTION, SEE SECTION 16.

GHS LABEL ELEMENTS, INCLUDING PRECAUTIONARY STATEMENTS

PICTOGRAM

SIGNAL WORD WARNING

HAZARD STATEMENT(S)

H272 MAY INTENSIFY FIRE; OXIDISER.
H290 MAY BE CORROSIVE TO METALS.
H315 CAUSES SKIN IRRITATION
H317 MAY CAUSE AN ALLERGIC SKIN REACTION.
H319 CAUSES SERIOUS EYE IRRITATION.
H341 SUSPECTED OF CAUSING GENETIC DEFECTS.
H400 VERY TOXIC TO AQUATIC LIFE.

PRECAUTIONARY STATEMENT(S)

P201 OBTAIN SPECIAL INSTRUCTIONS BEFORE USE.
P202 DO NOT HANDLE UNTIL ALL SAFETY PRECAUTIONS HAVE BEEN
READ AND UNDERSTOOD.
P210 KEEP AWAY FROM HEAT.
P220 KEEP/STORE AWAY FROM CLOTHING/ COMBUSTIBLE
MATERIALS.
P221 TAKE ANY PRECAUTION TO AVOID MIXING WITH
COMBUSTIBLES.
P234 KEEP ONLY IN ORIGINAL CONTAINER.
P261 AVOID BREATHING DUST/ FUME/ GAS/ MIST/ VAPORS/ SPRAY.
P264 WASH SKIN THOROUGHLY AFTER HANDLING.
P272 CONTAMINATED WORK CLOTHING SHOULD NOT BE ALLOWED
OUT OF THE WORKPLACE.
P273 AVOID RELEASE TO THE ENVIRONMENT.
P280 WEAR PROTECTIVE GLOVES/ PROTECTIVE CLOTHING/ EYE
PROTECTION/ FACE PROTECTION.
P302 + P352 IF ON SKIN: WASH WITH PLENTY OF SOAP AND WATER
P305 + P351 + P338 IF IN EYES: RINSE CAUTIOUSLY WITH WATER FOR SEVERAL
MINUTES. REMOVE CONTACT LENSES, IF PRESENT AND EASY TO
DO. CONTINUE RINSING.
P308 + P313 IF EXPOSED OR CONCERNED: GET MEDICAL ADVICE/
ATTENTION
P333 + P313 IF SKIN IRRITATION OR RASH OCCURS: GET MEDICAL ADVICE/
ATTENTION.
P337 + P313 IF EYE IRRITATION PERSISTS: GET MEDICAL ADVICE/
ATTENTION.
P362 TAKE OFF CONTAMINATED CLOTHING AND WASH BEFORE
REUSE.

P370 + P378 IN CASE OF FIRE: USE DRY SAND, DRY CHEMICAL OR ALCOHOL-RESISTANT FOAM FOR EXTINCTION.

P390 ABSORB SPILLAGE TO PREVENT MATERIAL DAMAGE.

P391 COLLECT SPILLAGE.

P405 STORE LOCKED UP.

P406 STORE IN CORROSIVE RESISTANT CONTAINER WITH A RESISTANT INNER LINER.

P501 DISPOSE OF CONTENTS/ CONTAINER TO AN APPROVED WASTE DISPOSAL PLANT.

HAZARDS NOT OTHERWISE CLASSIFIED (HNOC) OR NOT COVERED BY GHS NONE

SECTION 3. COMPOSITION/INFORMATION ON INGREDIENTS

MF: $C_4H_4BrNO_2$

MW: 177.99

CAS-NO. 128-08-5

PURITY: $\geq 99\%$ (Assay by titration)

HAZARDOUS COMPONENTS

COMPONENT	CLASSIFICATION	CONCENTRATION
<i>N</i> -Bromosuccinimide	OX. SOL. 3; MET. CORR. 1; SKIN IRRIT. 2; EYE IRRIT. 2A; SKIN SENS. 1B; MUTA. 2; AQUATIC ACUTE 1; H272, H290, H315, H319, H317, H341, H400 M-FACTOR - AQUATIC ACUTE: 1	$\leq 100\%$

FOR THE FULL TEXT OF THE H-STATEMENTS MENTIONED IN THIS SECTION, SEE SECTION 16.

SECTION 4. FIRST-AID MEASURES

DESCRIPTION OF FIRST AID MEASURES

GENERAL ADVICE	SHOW THIS MATERIAL SAFETY DATA SHEET TO THE DOCTOR IN ATTENDANCE.
IF INHALED	AFTER INHALATION: FRESH AIR. CALL IN PHYSICIAN.
IN CASE OF SKIN CONTACT	IN CASE OF SKIN CONTACT: TAKE OFF IMMEDIATELY ALL CONTAMINATED CLOTHING. RINSE SKIN WITH WATER/ SHOWER. CONSULT A PHYSICIAN.
IN CASE OF EYE CONTACT	AFTER EYE CONTACT: RINSE OUT WITH PLENTY OF WATER. IMMEDIATELY CALL IN OPHTHALMOLOGIST. REMOVE CONTACT LENSES.
IF SWALLOWED	AFTER SWALLOWING: IMMEDIATELY MAKE VICTIM DRINK WATER (TWO GLASSES AT MOST). CONSULT A PHYSICIAN.
MOST IMPORTANT SYMPTOMS AND EFFECTS, BOTH ACUTE AND DELAYED	THE MOST IMPORTANT KNOWN SYMPTOMS AND EFFECTS ARE DESCRIBED IN THE LABELLING (SEE SECTION 2.2) AND/OR IN SECTION 11.
INDICATION OF ANY IMMEDIATE MEDICAL ATTENTION AND SPECIAL TREATMENT NEEDED	NO DATA AVAILABLE

SECTION 5. FIRE AND EXPLOSION DATA

EXTINGUISHING MEDIA	
SUITABLE EXTINGUISHING MEDIA	NO DATA AVAILABLE
SPECIAL HAZARDS ARISING FROM THE SUBSTANCE OR MIXTURE	CARBON OXIDES NITROGEN OXIDES (NOX) HYDROGEN BROMIDE GAS COMBUSTIBLE. DEVELOPMENT OF HAZARDOUS COMBUSTION GASES OR VAPOURS POSSIBLE IN THE EVENT OF FIRE. HAS A FIRE-PROMOTING EFFECT DUE TO RELEASE OF OXYGEN.
ADVICE FOR FIREFIGHTERS	STAY IN DANGER AREA ONLY WITH SELF-CONTAINED BREATHING APPARATUS. PREVENT SKIN CONTACT BY KEEPING A SAFE DISTANCE OR BY WEARING SUITABLE PROTECTIVE CLOTHING.
FURTHER INFORMATION	SUPPRESS (KNOCK DOWN) GASES/VAPORS/MISTS WITH A WATER SPRAY JET. PREVENT FIRE EXTINGUISHING WATER

FROM CONTAMINATING SURFACE WATER OR THE
GROUND WATER SYSTEM.

SECTION 6. ACCIDENTAL RELEASE MEASURES

PERSONAL PRECAUTIONS, PROTECTIVE EQUIPMENT AND EMERGENCY PROCEDURES	ADVICE FOR NON-EMERGENCY PERSONNEL: AVOID INHALATION OF DUSTS. AVOID SUBSTANCE CONTACT. ENSURE ADEQUATE VENTILATION. EVACUATE THE DANGER AREA, OBSERVE EMERGENCY PROCEDURES, CONSULT AN EXPERT. FOR PERSONAL PROTECTION SEE SECTION 8.
ENVIRONMENTAL PRECAUTIONS	DO NOT LET PRODUCT ENTER DRAINS.
METHODS AND MATERIALS FOR CONTAINMENT AND CLEANING UP	COVER DRAINS. COLLECT, BIND, AND PUMP OFF SPILLS. OBSERVE POSSIBLE MATERIAL RESTRICTIONS (SEE SECTIONS 7 AND 10). TAKE UP DRY. DISPOSE OF PROPERLY. CLEAN UP AFFECTED AREA. AVOID GENERATION OF DUSTS.
REFERENCE TO OTHER SECTIONS	FOR DISPOSAL SEE SECTION 13.

SECTION 7. HANDLING AND STORAGE

PRECAUTIONS FOR SAFE HANDLING	KEEP AWAY FROM OPEN FLAMES, HOT SURFACES AND SOURCES OF IGNITION. IMMEDIATELY CHANGE CONTAMINATED CLOTHING. APPLY PREVENTIVE SKIN PROTECTION. WASH HANDS AND FACE AFTER WORKING WITH SUBSTANCE. FOR PRECAUTIONS SEE SECTION 2.2.S
CONDITIONS FOR SAFE STORAGE, INCLUDING ANY INCOMPATIBILITIES	NO METAL CONTAINERS. PROTECTED FROM LIGHT. TIGHTLY CLOSED. AWAY FROM COMBUSTIBLE MATERIALS AND SOURCES OF IGNITION AND HEAT. DO NOT STORE NEAR COMBUSTIBLE MATERIALS. Store at 2 - 8 °C LIGHT SENSITIVE. MOISTURE SENSITIVE. STORE UNDER INERT GAS.

SPECIFIC END USE(S)

APART FROM THE USES MENTIONED IN SECTION 1.2 NO OTHER SPECIFIC USES ARE STIPULATED.

SECTION 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

CONTROL PARAMETERS

COMPONENTS WITH WORKPLACE CONTROL PARAMETERS

CONTAINS NO SUBSTANCES WITH OCCUPATIONAL EXPOSURE LIMIT VALUES.

EXPOSURE CONTROLS

**APPROPRIATE
ENGINEERING
CONTROLS**

IMMEDIATELY CHANGE CONTAMINATED CLOTHING. APPLY PREVENTIVE SKIN PROTECTION. WASH HANDS AND FACE AFTER WORKING WITH SUBSTANCE.

PERSONAL PROTECTIVE EQUIPMENT

EYE/FACE PROTECTION

USE EQUIPMENT FOR EYE PROTECTION TESTED AND APPROVED UNDER APPROPRIATE GOVERNMENT STANDARDS SUCH AS NIOSH (US) OR EN 166(EU). SAFETY GLASSES

SKIN PROTECTION

HANDLE WITH GLOVES. GLOVES MUST BE INSPECTED PRIOR TO USE. USE PROPER GLOVE REMOVAL TECHNIQUE (WITHOUT TOUCHING GLOVE'S OUTER SURFACE) TO AVOID SKIN CONTACT WITH THIS PRODUCT. DISPOSE OF CONTAMINATED GLOVES AFTER USE IN ACCORDANCE WITH APPLICABLE LAWS AND GOOD LABORATORY PRACTICES. WASH AND DRY HANDS.

BODY PROTECTION

PROTECTIVE CLOTHING

**RESPIRATORY
PROTECTION**

REQUIRED WHEN DUSTS ARE GENERATED. OUR RECOMMENDATIONS ON FILTERING RESPIRATORY PROTECTION ARE BASED ON THE FOLLOWING STANDARDS: DIN EN 143, DIN 14387 AND OTHER ACCOMPANYING STANDARDS RELATING TO THE USED RESPIRATORY PROTECTION SYSTEM.

**CONTROL OF
ENVIRONMENTAL
EXPOSURE**

DO NOT LET PRODUCT ENTER DRAINS.

SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

INFORMATION ON BASIC PHYSICAL AND CHEMICAL PROPERTIES

APPEARANCE	White to slight yellow crystalline powder
ODOUR	CHARACTERISTIC
ODOUR THRESHOLD	NO DATA AVAILABLE
PH	NO DATA AVAILABLE
MELTING	177 - 190 °C
POINT/FREEZING POINT	
INITIAL BOILING POINT	
AND BOILING RANGE	
FLASH POINT	
EVAPOURATION RATE	NO DATA AVAILABLE
FLAMMABILITY (SOLID, GAS)	THE PRODUCT IS NOT FLAMMABLE. - TEST N.1: TEST METHOD FOR READILY COMBUSTIBLE SOLIDS
UPPER/LOWER	NO DATA AVAILABLE
FLAMMABILITY OR	
EXPLOSIVE LIMITS	
VAPOUR PRESSURE	< 1 HPA AT 20 °C - OECD TEST GUIDELINE 104
VAPOUR DENSITY	NO DATA AVAILABLE
RELATIVE DENSITY	
WATER SOLUBILITY	14.8 G/L AT 20 °C - (DECOMPOSITION), SOLUBLE
PARTITION COEFFICIENT: N- OCTANOL/WATER	NO DATA AVAILABLE
AUTO-IGNITION	> 400 °C - RELATIVE SELF-IGNITION TEMPERATURE FOR
TEMPERATURE	SOLIDS
DECOMPOSITION	CA.180 °C
TEMPERATURE	
VISCOSITY	NO DATA AVAILABLE
EXPLOSIVE PROPERTIES	NO DATA AVAILABLE
OXIDIZING PROPERTIES	THE SUBSTANCE OR MIXTURE IS CLASSIFIED AS OXIDIZING WITH THE CATEGORY 3.STRONG OXIDISING AGENT

OTHER SAFETY INFORMATION

NO DATA AVAILABLE

SECTION 10. STABILITY AND REACTIVITY

REACTIVITY	THE FOLLOWING APPLIES IN GENERAL TO FLAMMABLE ORGANIC SUBSTANCES AND MIXTURES: IN CORRESPONDINGLY FINE DISTRIBUTION, WHEN WHIRLED UP A DUST EXPLOSION POTENTIAL MAY GENERALLY BE ASSUMED.
CHEMICAL STABILITY	THE PRODUCT IS CHEMICALLY STABLE UNDER STANDARD AMBIENT CONDITIONS.

POSSIBILITY OF HAZARDOUS REACTIONS	EXOTHERMIC REACTION WITH: VIOLENT REACTIONS POSSIBLE WITH: ALCOHOLS AMINES AMMONIA ANILINES HYDRAZINE HYDRATE IRON/IRON-CONTAINING COMPOUNDS CAN DECOMPOSE VIOLENTLY IN CONTACT WITH: WATER RISK OF EXPLOSION WITH: NITRILES
CONDITIONS TO AVOID	EXPOSURE TO LIGHT. EXPOSURE TO MOISTURE.
INCOMPATIBLE MATERIALS	IRON/IRON-CONTAINING COMPOUNDS METALS
HAZARDOUS DECOMPOSITION PRODUCTS	IN THE EVENT OF FIRE: SEE SECTION 5

SECTION 11. TOXICOLOGICAL INFORMATION

INFORMATION ON TOXICOLOGICAL EFFECTS

ACUTE TOXICITY	LD50 ORAL - RAT - MALE AND FEMALE - > 2,000 MG/KG (OECD TEST GUIDELINE 401) SYMPTOMS: IRRITATIONS OF MUCOUS MEMBRANES IN THE MOUTH, PHARYNX, OESOPHAGUS AND GASTROINTESTINAL TRACT. SYMPTOMS: MUCOSAL IRRITATIONS, COUGH, SHORTNESS OF BREATH, POSSIBLE DAMAGES: DAMAGE OF RESPIRATORY TRACT INHALATION: NO DATA AVAILABLE DERMAL: NO DATA AVAILABLE NO DATA AVAILABLE
SKIN CORROSION/IRRITATION	SKIN - HUMAN RESULT: IRRITATING (OECD TEST GUIDELINE 439) REMARKS: (ECHA)
SERIOUS EYE DAMAGE/EYE IRRITATION	EYES - RABBIT RESULT: EYE IRRITATION REMARKS: (ECHA)

RESPIRATORY OR SKIN SENSITISATION	LOCAL LYMPH NODE ASSAY (LLNA) - MOUSE RESULT: THE PRODUCT IS A SKIN SENSITIZER, SUB-CATEGORY 1B. (OECD TEST GUIDELINE 429)
GERM CELL MUTAGENICITY	SUSPECTED OF CAUSING GENETIC DEFECTS. TEST TYPE: AMES TEST TEST SYSTEM: SALMONELLA TYPHIMURIUM METABOLIC ACTIVATION: WITH AND WITHOUT METABOLIC ACTIVATION METHOD: OECD TEST GUIDELINE 471 RESULT: POSITIVE RESULTS WERE OBTAINED IN SOME IN VITRO TESTS. TEST TYPE: IN VITRO TEST TEST SYSTEM: HUMAN LYMPHOCYTES METABOLIC ACTIVATION: WITH AND WITHOUT METABOLIC ACTIVATION METHOD: OECD TEST GUIDELINE 487 RESULT: POSITIVE
CARCINOGENICITY	
IARC:	NO INGREDIENT OF THIS PRODUCT PRESENT AT LEVELS GREATER THAN OR EQUAL TO 0.1% IS IDENTIFIED AS PROBABLE, POSSIBLE OR CONFIRMED HUMAN CARCINOGEN BY IARC.
NTP:	NO INGREDIENT OF THIS PRODUCT PRESENT AT LEVELS GREATER THAN OR EQUAL TO 0.1% IS IDENTIFIED AS A KNOWN OR ANTICIPATED CARCINOGEN BY NTP.
OSHA:	NO COMPONENT OF THIS PRODUCT PRESENT AT LEVELS GREATER THAN OR EQUAL TO 0.1% IS ON OSHA S LIST OF REGULATED CARCINOGENS.
REPRODUCTIVE TOXICITY	NO DATA AVAILABLE
SPECIFIC TARGET ORGAN TOXICITY - SINGLE EXPOSURE	NO DATA AVAILABLE
SPECIFIC TARGET ORGAN TOXICITY - REPEATED EXPOSURE	NO DATA AVAILABLE
ASPIRATION HAZARD	NO DATA AVAILABLE

**ADDITIONAL
INFORMATION**

RTECS: NOT AVAILABLE

MATERIAL IS EXTREMELY DESTRUCTIVE TO TISSUE OF THE MUCOUS MEMBRANES AND UPPER RESPIRATORY TRACT, EYES, AND SKIN.
TO THE BEST OF OUR KNOWLEDGE, THE CHEMICAL, PHYSICAL, AND TOXICOLOGICAL PROPERTIES HAVE NOT BEEN THOROUGHLY INVESTIGATED.

OTHER DANGEROUS PROPERTIES CAN NOT BE EXCLUDED.

HANDLE IN ACCORDANCE WITH GOOD INDUSTRIAL HYGIENE AND SAFETY PRACTICE.

SECTION 12. ECOLOGICAL INFORMATION

TOXICITY

TOXICITY TO FISH	SEMI-STATIC TEST LC50 - CYPRINUS CARPIO (CARP) - 0.4 MG/L - 96 H (OECD TEST GUIDELINE 203)
TOXICITY TO DAPHNIA AND OTHER AQUATIC INVERTEBRATES	STATIC TEST EC50 - DAPHNIA MAGNA (WATER FLEA) - 0.65 MG/L - 48 H (OECD TEST GUIDELINE 202)
TOXICITY TO ALGAE	STATIC TEST EC50 - PSEUDOKIRCHNERIELLA SUBCAPITATA (GREEN ALGAE) - 1.3 MG/L - 72 H (OECD TEST GUIDELINE 201)

PERSISTENCE AND DEGRADABILITY

BIODEGRADABILITY	AEROBIC - EXPOSURE TIME 35 D RESULT: 98 % - READILY BIODEGRADABLE. (OECD TEST GUIDELINE 301A)
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**BIOACCUMULATIVE
POTENTIAL**

NO DATA AVAILABLE

MOBILITY IN SOIL

NO DATA AVAILABLE

**RESULTS OF PBT AND VPVB
ASSESSMENT**

PBT/VPVB ASSESSMENT NOT AVAILABLE AS CHEMICAL SAFETY ASSESSMENT NOT REQUIRED/NOT CONDUCTED.

OTHER ADVERSE EFFECTS

NO DATA AVAILABLE

SECTION 13. DISPOSAL CONSIDERATIONS

WASTE TREATMENT METHODS

PRODUCT	WASTE MATERIAL MUST BE DISPOSED OF IN ACCORDANCE WITH THE NATIONAL AND LOCAL REGULATIONS. LEAVE CHEMICALS IN ORIGINAL CONTAINERS. NO MIXING WITH OTHER WASTE. HANDLE UNCLEANED CONTAINERS LIKE THE PRODUCT ITSELF.
CONTAMINATED PACKAGING	DISPOSE OF AS UNUSED PRODUCT.

SECTION 14. TRANSPORT INFORMATION

DOT (US)

PROPER SHIPPING NAME:	OXIDIZING SOLID, CORROSIVE, N.O.S. (<i>N</i> -Bromosuccinimide)
UN NUMBER:	3085
CLASS:	5.1 (8)
PACKING GROUP:	III
REPORTABLE QUANTITY (RQ):	
POISON INHALATION HAZARD:	NO

IMDG

PROPER SHIPPING NAME:	OXIDIZING SOLID, CORROSIVE, N.O.S. (<i>N</i> -Bromosuccinimide)
UN NUMBER:	3085
CLASS:	5.1 (8)
PACKING GROUP:	III
EMS-NO:	F-A, S-Q
MARINE POLLUTANT :	YES

IATA

PROPER SHIPPING NAME:	OXIDIZING SOLID, CORROSIVE, N.O.S. (<i>N</i> -Bromosuccinimide)
UN NUMBER:	3085
CLASS:	5.1 (8)
PACKING GROUP:	III

SECTION 15. REGULATORY INFORMATION

SARA 302 COMPONENTS	THIS MATERIAL DOES NOT CONTAIN ANY COMPONENTS WITH A SECTION 302 EHS TPQ.
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SARA 313 COMPONENTS THIS MATERIAL DOES NOT CONTAIN ANY CHEMICAL COMPONENTS WITH KNOWN CAS NUMBERS THAT EXCEED THE THRESHOLD (DE MINIMIS) REPORTING LEVELS ESTABLISHED BY SARA TITLE III, SECTION 313.

SARA 311/312 HAZARDS ACUTE HEALTH HAZARD

MASSACHUSETTS RIGHT TO KNOW COMPONENTS
NO COMPONENTS ARE SUBJECT TO THE MASSACHUSETTS RIGHT TO KNOW ACT.

SECTION 16. OTHER INFORMATION

FULL TEXT OF H-STATEMENTS REFERRED TO UNDER SECTIONS 2 AND 3.

H272	MAY INTENSIFY FIRE; OXIDISER.
H290	MAY BE CORROSIVE TO METALS.
H315	CAUSES SKIN IRRITATION
H317	MAY CAUSE AN ALLERGIC SKIN REACTION.
H319	CAUSES SERIOUS EYE IRRITATION.
H341	SUSPECTED OF CAUSING GENETIC DEFECTS.
H400	VERY TOXIC TO AQUATIC LIFE.

MSDS LEGEND

MW:	MOLECULAR WEIGHT
MF:	MOLECULAR FORMULA
VOC:	VOLATILE ORGANIC COMPOUNDS
ACGIH:	AMERICAN CONFERENCE OF GOVERNMENTAL INDUSTRIAL HYGINISTS
CAS:	CHEMICAL ABSTRACTS SERIVE REGISTRY NUMBER
OSHA:	OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION
PEL:	PERMISSIBLE EXPOSURE LIMIT (OSHA)
TLV:	THRESHOLD LIMIT VALUE (ACGIH)

IMPORTANT:

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