



# MATERIAL SAFETY DATA SHEET

MSDS NUMBER 2,017-4

## 24 HOUR EMERGENCY ASSISTANCE

SHELL: 713-473-9461 CHEMTREC: 800-424-9300

## GENERAL MSDS ASSISTANCE

SHELL: 713-241-4819



ACUTE HEALTH HAZARD 0



FIRE HAZARD 1



REACTIVITY 0

HAZARD RATING

LEAST - 0

S. G. - 1

MODERATE - 2

HIGH - 3

EXTREME - 4

SEVERE - 5

For acute and chronic health effects refer to the discussion in Section III

**BE SAFE**  
READ OUR PRO-  
DUCT SAFETY INFORMATION  
AND  
PASS IT ON

## SECTION I

NAME

PRODUCT KRATON(R) D2104 THERMOPLASTIC RUBBER

CHEMICAL NAME STYRENE-BUTADIENE-STYRENE BLOCK COPOLYMER

CHEMICAL FAMILY BLOCK COPOLYMER

SHELL CODE 46054 46811

## SECTION II-A

PRODUCT/INGREDIENT

NO.

COMPOSITION

CAS NUMBER

PERCENT

|   |                                                              |         |     |
|---|--------------------------------------------------------------|---------|-----|
| P | KRATON D2104                                                 | MIXTURE | 100 |
| 1 | STYRENE-BUTADIENE-STYRENE BLOCK COPOLYMER, WHITE MINERAL OIL |         | >99 |
| 2 | MINOR ADDITIVES                                              |         | <1  |
| 3 | MAGNESIUM CARBONATE DUSTING AGENT                            |         | <1  |

## SECTION II-B

ACUTE TOXICITY DATA

NO.

ACUTE ORAL LD50

ACUTE DERMAL LD50

ACUTE INHALATION LC50

P NOT APPLICABLE

BASED UPON DATA AVAILABLE TO SHELL, COMPONENTS 1 AND 2 IN THIS PRODUCT ARE NOT HAZARDOUS UNDER HAZARD COMMUNICATION (29 CFR 1910.1200).

## SECTION III

HEALTH INFORMATION

THE HEALTH EFFECTS NOTED BELOW ARE CONSISTENT WITH REQUIREMENTS UNDER THE OSHA HAZARD COMMUNICATION STANDARD (29 CFR 1910.1200).

## EYE CONTACT

BASED ON PRESENCE OF COMPONENT 3, PRODUCT IS PRESUMED TO BE MILDLY IRRITATING TO THE EYES

## SKIN CONTACT

BASED ON PRESENCE OF COMPONENT 3, PRODUCT IS PRESUMED TO BE MINIMALLY IRRITATING TO THE SKIN.

## INHALATION

BASED ON PRESENCE OF COMPONENT 3, PRODUCT IS PRESUMED TO CAUSE MILD IRRITATION TO THE NOSE, THROAT AND RESPIRATORY TRACT.

## INGESTION

PRODUCT IS GENERALLY CONSIDERED TO HAVE A LOW ORDER OF ACUTE ORAL TOXICITY.

DO 085367  
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SIGNS AND SYMPTOMS  
IRRITATION AS NOTED ABOVE.

AGGRAVATED MEDICAL CONDITIONS  
PREEXISTING EYE, SKIN AND RESPIRATORY DISORDERS MAY BE AGGRAVATED BY EXPOSURE TO THIS PRODUCT.

| SECTION IV OCCUPATIONAL EXPOSURE LIMITS |            |      |             |            |       |                  |
|-----------------------------------------|------------|------|-------------|------------|-------|------------------|
| NO.                                     | PEL/TWA    | OSHA | PEL/CEILING | TLV/TWA    | ACGIH | TLV/STEL & OTHER |
| 3                                       | 5 MG/M3*   |      |             | 5 MG/M3*   |       |                  |
| 3                                       | 15 MG/M3** |      |             | 10 MG/M3** |       |                  |

\*RESPIRABLE DUST. \*\*TOTAL DUST.

SECTION V EMERGENCY AND FIRST AID PROCEDURES

EYE CONTACT

FLUSH EYES WITH WATER IF IRRITATION OCCURS. GET MEDICAL ATTENTION.

SKIN CONTACT

IF CONTACT WITH MOLTEN PRODUCT OCCURS, TREAT AS FOR ORDINARY BURNS.

INHALATION

NOT ORDINARILY REQUIRED; REMOVE AFFECTED PERSON FROM DUSTY ENVIRONMENT.

INGESTION

NOT ORDINARILY REQUIRED

SECTION VI SUPPLEMENTAL HEALTH INFORMATION

ALL EVIDENCE INDICATES THAT LARGE POLYMER MOLECULES ARE NOT BIOLOGICALLY ACTIVE.

SECTION VII PHYSICAL DATA

|                                                        |                |                          |             |                        |                |
|--------------------------------------------------------|----------------|--------------------------|-------------|------------------------|----------------|
| BOILING POINT (DEG F)                                  | NOT APPLICABLE | SPECIFIC GRAVITY (H2O=1) | 0.92        | VAPOR PRESSURE (MM HG) | NOT APPLICABLE |
| MELTING POINT (DEG F)                                  | NOT APPLICABLE | SOLUBILITY (IN WATER)    | NEGLECTIBLE | VAPOR DENSITY (AIR=1)  | NOT APPLICABLE |
| EVAPORATION RATE (N-BUTYL ACETATE = 1): NOT APPLICABLE |                |                          |             |                        |                |
| APPEARANCE AND ODOR: SOLID, ESSENTIALLY ODORLESS       |                |                          |             |                        |                |

SECTION VIII FIRE AND EXPLOSION HAZARDS

FLASH POINT AND METHOD:  
NOT APPLICABLE

FLAMMABLE LIMITS /% VOLUME IN AIR  
LOWER: N/AP UPPER: N/AP

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**EXTINGUISHING MEDIA**

USE WATER FOG, FOAM, DRY CHEMICAL OR CO2.

**SPECIAL FIRE FIGHTING PROCEDURES AND PRECAUTIONS**

MATERIAL WILL NOT BURN UNLESS PREHEATED. DO NOT ENTER CONFINED FIRE SPACE WITHOUT FULL BUNKER GEAR (HELMET WITH FACE SHIELD, BUNKER COATS, GLOVES AND RUBBER BOOTS), INCLUDING A POSITIVE PRESSURE NIOSH APPROVED SELF-CONTAINED BREATHING APPARATUS. COOL FIRE EXPOSED CONTAINERS WITH WATER.

**SECTION IX****REACTIVITY**

STABILITY: STABLE

HAZARDOUS POLYMERIZATION WILL NOT OCCUR

**CONDITIONS AND MATERIALS TO AVOID:**

MATERIALS: AVOID CONTACT WITH STRONG OXIDIZING AGENTS. CONDITIONS: PRODUCT CONTAINS RESIDUAL UNSATURATION WHICH CAN UNDERGO EXOTHERMIC OXIDATIVE DEGRADATION. ACCUMULATION OF PRODUCT IN AREA EXPOSED TO ELEVATED TEMPERATURES FOR EXTENDED PERIODS IN AIR MAY RESULT IN SELF-HEATING AND AUTOIGNITION. SHELL'S INTERNAL GUIDELINE IS FIVE DAYS AT 200 DEG F.

**HAZARDOUS DECOMPOSITION PRODUCTS**

AT PROCESSING TEMPERATURES, SOME DEGREE OF THERMAL DEGRADATION WILL OCCUR. ALTHOUGH HIGHLY DEPENDENT ON TEMPERATURE/ENVIRONMENTAL CONDITIONS, A VARIETY OF DECOMPOSITION PRODUCTS MAY BE PRESENT RANGING FROM SIMPLE HYDROCARBONS (SUCH AS METHANE/PROPANE) TO TOXIC/IRRITATING GASES (CARBON MONOXIDE/DIOXIDE, ACRYLEIN, HALOGENATED COMPOUNDS, ACIDS, KETONES, ALDEHYDES). SEE SPECIAL PRECAUTIONS.

**SECTION X****EMPLOYEE PROTECTION****RESPIRATORY PROTECTION**

IF EXPOSURE MAY OR DOES EXCEED OCCUPATIONAL EXPOSURE LIMITS (SEC IV) USE A NIOSH-APPROVED RESPIRATOR TO PREVENT OVEREXPOSURE. IN ACCORD WITH 29 CFR 1910.134 USE EITHER AN ATMOSPHERE-SUPPLYING RESPIRATOR OR AN AIR-PURIFYING RESPIRATOR FOR PARTICULATES.

**PROTECTIVE CLOTHING**

SAFETY GLASSES AND PROTECTIVE CLOTHING SHOULD BE WORN WHEN PRODUCT IS HEATED IN PROCESSING

**ADDITIONAL PROTECTIVE MEASURES**

VENTILATION AS REQUIRED TO CONTROL DUST CONCENTRATION IN AIR. ADEQUATE VENTILATION AND/OR ENGINEERING CONTROLS ARE REQUIRED WHEN PRODUCT IS HEATED IN PROCESSING.

**SECTION XI****ENVIRONMENTAL PROTECTION****SPILL OR LEAK PROCEDURES**

SHOVEL AND SWEEP UP OR USE INDUSTRIAL VACUUM CLEANER. AVOID GENERATING DUST CLOUDS. PUT INTO CONTAINERS FOR RECLAIMING OR DISPOSAL.

**WASTE DISPOSAL**

PLACE IN AN APPROPRIATE DISPOSAL FACILITY IN COMPLIANCE WITH LOCAL REGULATIONS

**SECTION XII****SPECIAL PRECAUTIONS**

PRACTICE GOOD HOUSEKEEPING. DO NOT ALLOW PRODUCT TO ACCUMULATE IN PROCESSING AREA.

PRODUCT CAN ACCUMULATE STATIC CHARGES WHEN HANDLED. EQUIPMENT SHOULD PROVIDE A MEANS FOR DISSIPATING ANY CHARGES THAT MAY DEVELOP.

IN PROCESSING, DO NOT ALLOW THE TEMPERATURE TO EXCEED 450 DEG. F. MAINTAIN A FIRE WATCH IF 450 DEG. F IS REACHED.

AVOID VAPORS FROM HEATED PRODUCTS. ADEQUATE VENTILATION AND/OR ENGINEERING CONTROLS MUST BE EMPLOYED IN HIGH TEMPERATURE PROCESSING TO PREVENT EXPOSURE TO POTENTIALLY TOXIC/IRRITATING FUMES.

## SECTION XIII

## TRANSPORTATION REQUIREMENTS

DEPARTMENT OF TRANSPORTATION CLASSIFICATION. NOT HAZARDOUS BY D.O.T. REGULATIONS

## SECTION XIV

## OTHER REGULATORY CONTROLS

THE COMPONENTS OF THIS PRODUCT ARE LISTED ON THE EPA/TSCA INVENTORY OF CHEMICAL SUBSTANCES

THE INFORMATION CONTAINED HEREIN IS BASED ON THE DATA AVAILABLE TO US AND IS BELIEVED TO BE CORRECT HOWEVER, SHELL MAKES NO WARRANTY, EXPRESSED OR IMPLIED REGARDING THE ACCURACY OF THESE DATA OR THE RESULTS TO BE OBTAINED FROM THE USE THEREOF. SHELL ASSUMES NO RESPONSIBILITY FOR INJURY FROM THE USE OF THE PRODUCT DESCRIBED HEREIN

DATE PREPARED: SEPTEMBER 25, 1986

JOHN P. SEPESE

## BE SAFE

READ OUR PRODUCT  
SAFETY INFORMATION ...AND PASS IT ON  
(PRODUCT LIABILITY LAW  
REQUIRES IT)

SHELL OIL COMPANY  
PRODUCT SAFETY AND COMPLIANCE  
P. O. BOX 4320  
HOUSTON, TX 77210

DO 085370  
CONFIDENTIAL



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# MATERIAL SAFETY DATA SHEET

MSDS NUMBER 2,388-5

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|                                                                              |           |                 |                                                                            |  |  |
|------------------------------------------------------------------------------|-----------|-----------------|----------------------------------------------------------------------------|--|--|
| 24 HOUR EMERGENCY ASSISTANCE                                                 |           |                 | GENERAL MSDS ASSISTANCE                                                    |  |  |
| SHELL: 713-473-9461 CHEMTREC: 800-424-9300                                   |           |                 | SHELL: 713-241-4819                                                        |  |  |
| ACUTE HEALTH<br>+                                                            | FIRE<br>1 | REACTIVITY<br>0 | HAZARD RATING<br>LEAST - 0 SLIGHT - 1 MODERATE - 2<br>HIGH - 3 EXTREME - 4 |  |  |
| *For acute and chronic health effects refer to the discussion in Section III |           |                 |                                                                            |  |  |



|                 |                                           |      |  |
|-----------------|-------------------------------------------|------|--|
| SECTION I       |                                           | NAME |  |
| PRODUCT         | KRATON(R) D1184X THERMOPLASTIC RUBBER     |      |  |
| CHEMICAL NAME   | STYRENE-BUTADIENE-STYRENE BLOCK COPOLYMER |      |  |
| CHEMICAL FAMILY | BLOCK COPOLYMER                           |      |  |
| SHELL CODE      | 46223 46117 46897 46977 46247 46961       |      |  |

| SECTION II-A |                                           | PRODUCT/INGREDIENT |         |
|--------------|-------------------------------------------|--------------------|---------|
| NO.          | COMPOSITION                               | CAS NUMBER         | PERCENT |
| P            | KRATON D1184X THERMOPLASTIC RUBBER        | MIXTURE            | 100     |
| 1            | STYRENE-BUTADIENE-STYRENE BLOCK COPOLYMER | 9003-55-8          | >94     |
| 2            | TALC                                      | 14807-96-6         | 0-1     |
| 3            | CALCIUM CARBONATE                         | 1317-65-3          | 0-5     |
| 4            | ANTIOXIDANT/STABILIZER                    |                    | <1      |

\*KRATON D1184X-0 DOES NOT CONTAIN COMPONENT 2 OR 3. KRATON D1184X-2 CONTAINS COMPONENT 2. KRATON D1184G-6 AND D1184G-8 CONTAINS COMPONENT 3.

| SECTION II-B |                 | ACUTE TOXICITY DATA |                       |
|--------------|-----------------|---------------------|-----------------------|
| NO.          | ACUTE ORAL LD50 | ACUTE DERMAL LD50   | ACUTE INHALATION LC50 |
| P            | NOT AVAILABLE   |                     |                       |

BASED UPON DATA AVAILABLE TO SHELL, COMPONENTS 1 AND 4 IN THIS PRODUCT ARE NOT HAZARDOUS UNDER OSHA HAZARD COMMUNICATION (29 CFR 1910.1200).

## SECTION III HEALTH INFORMATION

THE HEALTH EFFECTS NOTED BELOW ARE CONSISTENT WITH REQUIREMENTS UNDER THE OSHA HAZARD COMMUNICATION STANDARD (29 CFR 1910.1200).

### EYE CONTACT

BASED ON PRESENCE OF COMPONENT 2 OR 3, PRODUCT MAY CAUSE MILD MECHANICAL IRRITATION TO THE EYES.

### SKIN CONTACT

BASED ON PRESENCE OF COMPONENT 2 OR 3, PRODUCT IS PRESUMED TO BE MINIMALLY IRRITATING TO THE SKIN.

### INHALATION

BASED ON PRESENCE OF COMPONENT 2 OR 3, PRODUCT MAY CAUSE MILD MECHANICAL IRRITATION TO THE NOSE THROAT AS RESPIRATORY TRACT.

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PRODUCT NAME: KRATON(R) D1184X THERMOPLASTIC RUBBER

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PAGE 2

**INGESTION**

PRODUCT IS GENERALLY CONSIDERED TO HAVE A LOW ORDER OF ACUTE ORAL TOXICITY.

**SENS AND SYMPTOMS**  
IRRITATION AS NOTED ABOVE.

**AGGRAVATED MEDICAL CONDITIONS**

PREEXISTING EYE, SKIN, AND RESPIRATORY DISORDERS MAY BE AGGRAVATED BY EXPOSURE TO THIS PRODUCT.

-----  
**SECTION IV**

**OCCUPATIONAL EXPOSURE LIMITS**  
-----

| NO. | OSHA PEL/TWA | OSHA PEL/CEILING | ACGIH TLV/TWA | ACGIH TLV/STEL | OTHER |
|-----|--------------|------------------|---------------|----------------|-------|
| 2   |              | 20 MPPCF         | 2 MG/M3*      |                |       |
| 3   | 15 MG/M3**   |                  | 10 MG/M3**    |                |       |
| 3   | 5 MG/M3*     |                  | 5 MG/M3*      |                |       |

TALC USED ON PRODUCT IS NON-ASBESTOS FORM. \* RESPIRABLE DUST. \*\* TOTAL DUST.

-----  
**SECTION V**

**EMERGENCY AND FIRST AID PROCEDURES**  
-----

**EYE CONTACT**

FLUSH EYES WITH WATER.. IF IRRITATION OCCURS, GET MEDICAL ATTENTION.

**SKIN CONTACT**

IF CONTACT WITH MOLTEN PRODUCT OCCURS, TREAT AS FOR ORDINARY BURNS.

**INHALATION**

NOT ORDINARILY REQUIRED; REMOVE AFFECTED PERSON FROM DUSTY ENVIRONMENT.

**INGESTION**

NOT ORDINARILY REQUIRED.

-----  
**SECTION VI**

**SUPPLEMENTAL INFORMATION**  
-----

ALL EVIDENCE INDICATES THAT LARGE POLYMER MOLECULES ARE NOT BIOLOGICALLY ACTIVE.

-----  
**SECTION VII**

**PHYSICAL DATA**  
-----

|                                                        |                                      |                                           |
|--------------------------------------------------------|--------------------------------------|-------------------------------------------|
| BOILING POINT: NOT APPLICABLE<br>(DEG F)               | SPECIFIC GRAVITY: 0.94<br>(H2O=1)    | VAPOR PRESSURE: NOT APPLICABLE<br>(MM HG) |
| MELTING POINT: NOT APPLICABLE<br>(DEG F)               | SOLUBILITY: NEGLIGIBLE<br>(IN WATER) | VAPOR DENSITY: NOT APPLICABLE<br>(AIR=1)  |
| EVAPORATION RATE (N-BUTYL ACETATE = 1): NOT APPLICABLE |                                      |                                           |

APPEARANCE AND ODOR: SOLID, ESSENTIALLY ODORLESS.

DO 085372  
CONFIDENTIAL

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SECTION VIII FIRE AND EXPLOSION HAZARDS  
-----

FLASH POINT AND METHOD:  
NOT APPLICABLE

FLAMMABLE LIMITS /% VOLUME IN AIR  
LOWER: N/AP UPPER: N/AP

EXTINGUISHING MEDIA

USE WATER FOG, FOAM, DRY CHEMICAL OR CO2.

SPECIAL FIRE FIGHTING PROCEDURES AND PRECAUTIONS

MATERIAL WILL NOT BURN UNLESS PREHEATED. DO NOT ENTER CONFINED FIRE SPACE WITHOUT FULL BUNKER GEAR (HELMET WITH FACE SHIELD, BUNKER COATS, GLOVES AND RUBBER BOOTS), INCLUDING A POSITIVE PRESSURE NIOSH APPROVED SELF-CONTAINED BREATHING APPARATUS. COOL FIRE EXPOSED CONTAINERS WITH WATER.

-----  
SECTION IX REACTIVITY  
-----

STABILITY: STABLE

HAZARDOUS POLYMERIZATION: WILL NOT OCCUR

CONDITIONS AND MATERIALS TO AVOID:

MATERIALS: AVOID CONTACT WITH STRONG OXIDIZING AGENTS. CONDITIONS: PRODUCT CONTAINS RESIDUAL UNSATURATION WHICH CAN UNDERGO EXOTHERMIC OXIDATIVE DEGRADATION. ACCUMULATION OF PRODUCT IN AREAS EXPOSED TO ELEVATED TEMPERATURES FOR EXTENDED PERIODS IN AIR MAY RESULT IN SELF-HEATING AND AUTOIGNITION. SHELL'S INTERNAL GUIDELINE IS FIVE DAYS AT 200 DEG F.

HAZARDOUS DECOMPOSITION PRODUCTS

AT PROCESSING TEMPERATURES, SOME DEGREE OF THERMAL DEGRADATION WILL OCCUR. ALTHOUGH HIGHLY DEPENDENT ON TEMPERATURE/ENVIRONMENTAL CONDITIONS, A VARIETY OF DECOMPOSITION PRODUCTS MAY BE PRESENT RANGING FROM SIMPLE HYDROCARBONS (SUCH AS METHANE/PROPANE) TO TOXIC/IRRITATING GASES (CARBON MONOXIDE/DIOXIDE, ACRYLEIN, HALOGENATED COMPOUNDS, ACIDS, KETONES, ALDEHYDES). SEE SPECIAL PRECAUTIONS.

-----  
SECTION X EMPLOYEE PROTECTION  
-----

RESPIRATORY PROTECTION

IF EXPOSURE MAY OR DOES EXCEED OCCUPATIONAL EXPOSURE LIMITS (SEC. IV) USE A NIOSH-APPROVED RESPIRATOR TO PREVENT OVEREXPOSURE. IN ACCORD WITH 29 CFR 1910.134 USE EITHER AN ATMOSPHERE-SUPPLYING RESPIRATOR OR AN AIR-PURIFYING RESPIRATOR FOR PARTICULATES.

PROTECTIVE CLOTHING

SAFETY GLASSES AND PROTECTIVE CLOTHING SHOULD BE WORN WHEN PRODUCT IS HEATED IN PROCESSING.

ADDITIONAL PROTECTIVE MEASURES

VENTILATION AS REQUIRED TO CONTROL DUST CONCENTRATION IN AIR. ADEQUATE VENTILATION AND/OR ENGINEERING CONTROLS ARE REQUIRED WHEN PRODUCT IS HEATED IN PROCESSING.

-----  
SECTION XI ENVIRONMENTAL PROTECTION  
-----

SPILL OR LEAK PROCEDURES

SHOVEL AND SWEEP UP OR USE INDUSTRIAL VACUUM CLEANER. AVOID GENERATING DUST CLOUDS. PUT INTO CONTAINERS FOR RECLAIMING OR DISPOSAL.

WASTE DISPOSAL

PLACE IN AN APPROPRIATE DISPOSAL FACILITY IN COMPLIANCE WITH LOCAL REGULATIONS.

SECTION XII

SPECIAL PRECAUTIONS

PRACTICE GOOD HOUSEKEEPING. DO NOT ALLOW PRODUCT TO ACCUMULATE IN PROCESSING AREA.

PRODUCT CAN ACCUMULATE STATIC CHARGES WHEN HANDLED. EQUIPMENT SHOULD PROVIDE A MEANS FOR DISSIPATING ANY CHARGES THAT MAY DEVELOP.

IN PROCESSING, DO NOT ALLOW THE TEMPERATURE TO EXCEED 450 DEG. F. MAINTAIN A FIRE WATCH IF 450 DEG. F IS REACHED.

AVOID VAPORS FROM HEATED PRODUCTS. ADEQUATE VENTILATION AND/OR ENGINEERING CONTROLS MUST BE EMPLOYED IN HIGH TEMPERATURE PROCESSING TO PREVENT EXPOSURE TO POTENTIALLY TOXIC/IRRITATING FUMES.

SECTION XIII

TRANSPORTATION REQUIREMENTS

DEPARTMENT OF TRANSPORTATION CLASSIFICATION: NOT HAZARDOUS BY D.O.T. REGULATIONS

SECTION XIV

OTHER REGULATORY CONTROLS

THE COMPONENTS OF THIS PRODUCT ARE LISTED ON THE EPA/TSCA INVENTORY OF CHEMICAL SUBSTANCES.

THE INFORMATION CONTAINED HEREIN IS BASED ON THE DATA AVAILABLE TO US AND IS BELIEVED TO BE CORRECT. HOWEVER, SHELL MAKES NO WARRANTY, EXPRESSED OR IMPLIED REGARDING THE ACCURACY OF THESE DATA OR THE RESULTS TO BE OBTAINED FROM THE USE THEREOF. SHELL ASSUMES NO RESPONSIBILITY FOR INJURY FROM THE USE OF THE PRODUCT DESCRIBED HEREIN.

DATE PREPARED: SEPTEMBER 25, 1986

JOHN P. SEPEZI

BE SAFE

READ OUR PRODUCT  
SAFETY INFORMATION ...AND PASS IT ON  
(PRODUCT LIABILITY LAW  
REQUIRES IT)

SHELL OIL COMPANY  
PRODUCT SAFETY AND COMPLIANCE  
P. O. BOX 4320  
HOUSTON, TX 77210

DO 085374  
CONFIDENTIAL



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Shell

## MATERIAL SAFETY DATA SHEET

MSDS NUMBER 2,319-3

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|                                                                              |           |                         |                                                                                     |                                                                                                                                                       |
|------------------------------------------------------------------------------|-----------|-------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------|
| 24 HOUR EMERGENCY ASSISTANCE                                                 |           | GENERAL MSDS ASSISTANCE |                                                                                     | <b>BE SAFE</b><br>READ OUR PRODUCT<br>SAFETY INFORMATION<br>... AND<br>PASS IT ON<br><small>(PRODUCT LIABILITY LAW<br/>         RECALLS 1971)</small> |
| SHELL: 713-473-9461 CHEMTREC: 800-424-9300                                   |           | SHELL: 713-241-4819     |                                                                                     |                                                                                                                                                       |
| ACUTE HEALTH<br>0                                                            | FIRE<br>1 | REACTIVITY<br>0         | HAZARD RATING<br>LEAST - 0    SLIGHT - 1    MODERATE - 2<br>HIGH - 3    EXTREME - 4 |                                                                                                                                                       |
| *For acute and chronic health effects refer to the discussion in Section III |           |                         |                                                                                     |                                                                                                                                                       |

|                 |                                            |       |                         |
|-----------------|--------------------------------------------|-------|-------------------------|
| SECTION I       |                                            | NAME  |                         |
| PRODUCT         | KRATON(R) D4158 THERMOPLASTIC RUBBER 1122X |       |                         |
| CHEMICAL NAME   | STYRENE-BUTADIENE-STYRENE BLOCK COPOLYMER  |       |                         |
| CHEMICAL FAMILY | BLOCK COPOLYMER                            |       |                         |
| SHELL CODE      | 46306                                      | 46542 | 46723 46939 46244 46952 |

| SECTION II-A |                                                           | PRODUCT/INGREDIENT |         |
|--------------|-----------------------------------------------------------|--------------------|---------|
| NO.          | COMPOSITION                                               | CAS NUMBER         | PERCENT |
| P            | KRATON D4158 THERMOPLASTIC RUBBER                         | MIXTURE            | 100     |
| 1            | SBS BLOCK COPOLYMER, MINERAL OIL, ANTIOXIDANT/STABILIZERS |                    | >97     |
| 2            | HYDRATED ALUMINA                                          | 21645-51-2         | 1-3     |

| SECTION II-B |                 | ACUTE TOXICITY DATA |                       |
|--------------|-----------------|---------------------|-----------------------|
| NO.          | ACUTE ORAL LD50 | ACUTE DERMAL LD50   | ACUTE INHALATION LC50 |
| P            | NOT APPLICABLE  |                     |                       |

BASED UPON DATA AVAILABLE TO SHELL, COMPONENT 1 IN THIS PRODUCT IS NOT HAZARDOUS UNDER OSHA HAZARD COMMUNICATION (29 CFR 1910.1200).

## SECTION III HEALTH INFORMATION

THE HEALTH EFFECTS NOTED BELOW ARE CONSISTENT WITH REQUIREMENTS UNDER THE OSHA HAZARD COMMUNICATION STANDARD (29 CFR 1910.1200).

## EYE CONTACT

BASED ON PRESENCE OF COMPONENT 2, PRODUCT MAY CAUSE MILD MECHANICAL IRRITATION TO THE EYES.

## SKIN CONTACT

BASED ON PRESENCE OF COMPONENT 2, PRODUCT IS PRESUMED TO BE MINIMALLY IRRITATING TO THE SKIN.

## INHALATION

BASED ON PRESENCE OF COMPONENT 2, PRODUCT MAY CAUSE MILD MECHANICAL IRRITATION TO THE NOSE, THROAT AND RESPIRATORY TRACT.

## INGESTION

PRODUCT IS GENERALLY CONSIDERED TO HAVE A LOW ORDER OF ACUTE ORAL TOXICITY.

## SIGNS AND SYMPTOMS

IRRITATION AS NOTED ABOVE.

DO 085375  
CONFIDENTIAL

## AGGRAVATED MEDICAL CONDITIONS

PREEXISTING EYE, SKIN AND RESPIRATORY DISORDERS MAY BE AGGRAVATED BY EXPOSURE TO THIS PRODUCT.

## SECTION IV

## OCCUPATIONAL EXPOSURE LIMITS

| NO. | PEL/TWA    | OSHA | PEL/CEILING | TLV/TWA    | ACGIH | TLV/STEL | OTHER |
|-----|------------|------|-------------|------------|-------|----------|-------|
| 2   | 15 MG/M3** |      |             | 10 MG/M3** |       |          |       |
| 2   | 5 MG/M3*   |      |             | 5 MG/M3*   |       |          |       |

\*RESPIRABLE DUST.

\*\*TOTAL DUST.

## SECTION V

## EMERGENCY AND FIRST AID PROCEDURES

## EYE CONTACT

FLUSH EYES WITH WATER. IF IRRITATION OCCURS, GET MEDICAL ATTENTION.

## SKIN CONTACT

IF CONTACT WITH MOLTEN PRODUCT OCCURS, TREAT AS FOR ORDINARY BURNS.

## INHALATION

NOT ORDINARILY REQUIRED; REMOVE AFFECTED PERSON FROM DUSTY ENVIRONMENT.

## INGESTION

NOT ORDINARILY REQUIRED.

## SECTION VI

## SUPPLEMENTAL INFORMATION

1. EVIDENCE INDICATES THAT LARGE POLYMER MOLECULES ARE NOT BIOLOGICALLY ACTIVE.

## SECTION VII

## PHYSICAL DATA

|                                                        |                                      |                                           |
|--------------------------------------------------------|--------------------------------------|-------------------------------------------|
| BOILING POINT: NOT APPLICABLE<br>(DEG F)               | SPECIFIC GRAVITY: <1<br>(H2O=1)      | VAPOR PRESSURE: NOT APPLICABLE<br>(MM HG) |
| MELTING POINT: NOT APPLICABLE<br>(DEG F)               | SOLUBILITY: NEGLIGIBLE<br>(IN WATER) | VAPOR DENSITY: NOT APPLICABLE<br>(AIR=1)  |
| EVAPORATION RATE (N-BUTYL ACETATE = 1): NOT APPLICABLE |                                      |                                           |

APPEARANCE AND ODOR: SOLID, ESSENTIALLY ODORLESS.

## SECTION VIII

## FIRE AND EXPLOSION HAZARDS

FLASH POINT AND METHOD:  
NOT APPLICABLEFLAMMABLE LIMITS % VOLUME IN AIR  
LOWER: N/APL UPPER: N/APL

EXTINGUISHING MEDIA  
USE WATER FOG, FOAM, DRY CHEMICAL OR CO2.

SPECIAL FIRE FIGHTING PROCEDURES AND PRECAUTIONS  
MATERIAL WILL NOT BURN UNLESS PREHEATED. DO NOT ENTER CONFINED FIRE SPACE WITHOUT FULL BUNKER GEAR (HELMET WITH FACE SHIELD, BUNKER COATS, GLOVES AND RUBBER BOOTS), INCLUDING A POSITIVE PRESSURE NIOSH APPROVED SELF-CONTAINED BREATHING APPARATUS. COOL FIRE EXPOSED CONTAINERS WITH WATER.

-----  
SECTION IX REACTIVITY  
-----

STABILITY: STABLE

HAZARDOUS POLYMERIZATION: WILL NOT OCCUR

CONDITIONS AND MATERIALS TO AVOID:  
MATERIALS: AVOID CONTACT WITH STRONG OXIDIZING AGENTS. CONDITIONS: PRODUCT CONTAINS RESIDUAL UNSATURATION WHICH CAN UNDERGO EXOTHERMIC OXIDATIVE DEGRADATION. ACCUMULATION OF PRODUCT IN AREAS EXPOSED TO ELEVATED TEMPERATURES FOR EXTENDED PERIODS IN AIR MAY RESULT IN SELF-HEATING AND AUTOIGNITION. SHELL'S INTERNAL GUIDELINE IS FIVE DAYS AT 200 DEG F.

HAZARDOUS DECOMPOSITION PRODUCTS  
AT PROCESSING TEMPERATURES, SOME DEGREE OF THERMAL DEGRADATION WILL OCCUR. ALTHOUGH HIGHLY DEPENDENT ON TEMPERATURE/ENVIRONMENTAL CONDITIONS, A VARIETY OF DECOMPOSITION PRODUCTS MAY BE PRESENT RANGING FROM SIMPLE HYDROCARBONS (SUCH AS METHANE/PROPANE) TO TOXIC/IRRITATING GASES (CARBON MONOXIDE/DIOXIDE, ACROLEIN, HALOGENATED COMPOUNDS, ACIDS, KETONES, ALDEHYDES). SEE SPECIAL PRECAUTIONS.

-----  
SECTION X EMPLOYEE PROTECTION  
-----

RESPIRATORY PROTECTION  
IF EXPOSURE MAY OR DOES EXCEED OCCUPATIONAL EXPOSURE LIMITS (SEC. IV) USE A NIOSH-APPROVED RESPIRATOR TO PREVENT OVEREXPOSURE. IN ACCORD WITH 29 CFR 1910.134 USE EITHER AN ATMOSPHERE-SUPPLYING RESPIRATOR OR AN AIR-PURIFYING RESPIRATOR FOR PARTICULATES.

PROTECTIVE CLOTHING  
SAFETY GLASSES AND PROTECTIVE CLOTHING SHOULD BE WORN WHEN PRODUCT IS HEATED IN PROCESSING.

ADDITIONAL PROTECTIVE MEASURES  
VENTILATION AS REQUIRED TO CONTROL DUST CONCENTRATION IN AIR. ADEQUATE VENTILATION AND/OR ENGINEERING CONTROLS ARE REQUIRED WHEN PRODUCT IS HEATED IN PROCESSING.

-----  
SECTION XI ENVIRONMENTAL PROTECTION  
-----

SPILL OR LEAK PROCEDURES  
SHOVEL AND SWEEP UP OR USE INDUSTRIAL VACUUM CLEANER. AVOID GENERATING DUST CLOUDS. PUT INTO CONTAINERS FOR RECLAIMING OR DISPOSAL.

WASTE DISPOSAL  
PLACE IN AN APPROPRIATE DISPOSAL FACILITY IN COMPLIANCE WITH LOCAL REGULATIONS.

-----  
SECTION XII SPECIAL PRECAUTIONS  
-----

PRACTICE GOOD HOUSEKEEPING. DO NOT ALLOW PRODUCT TO ACCUMULATE IN PROCESSING AREA.

PRODUCT CAN ACCUMULATE STATIC CHARGES WHEN HANDLED. EQUIPMENT SHOULD PROVIDE A MEANS FOR DISSIPATING ANY CHARGES THAT MAY DEVELOP.

IN PROCESSING, DO NOT ALLOW THE TEMPERATURE TO EXCEED 450 DEG F. MAINTAIN A FIRE WATCH IF 450 DEG F IS REACHED.

AVOID VAPORS FROM HEATED PRODUCTS. ADEQUATE VENTILATION AND/OR ENGINEERING CONTROLS MUST BE EMPLOYED IN HIGH TEMPERATURE PROCESSING TO PREVENT EXPOSURE TO POTENTIALLY TOXIC/IRRITATING FUMES.

PRODUCT NAME: KRATON(R) D4158 THERMOPLASTIC RUBBER

MSDS 2,319-3  
PAGE 4

SECTION XIII

TRANSPORTATION REQUIREMENTS

DEPARTMENT OF TRANSPORTATION CLASSIFICATION: NOT HAZARDOUS BY D.O.T. REGULATIONS

SECTION XIV

OTHER REGULATORY CONTROLS

THE COMPONENTS OF THIS PRODUCT ARE LISTED ON THE EPA/TSCA INVENTORY OF CHEMICAL SUBSTANCES.

THE INFORMATION CONTAINED HEREIN IS BASED ON THE DATA AVAILABLE TO US AND IS BELIEVED TO BE CORRECT. HOWEVER, SHELL MAKES NO WARRANTY, EXPRESSED OR IMPLIED REGARDING THE ACCURACY OF THESE DATA OR THE RESULTS TO BE OBTAINED FROM THE USE THEREOF. SHELL ASSUMES NO RESPONSIBILITY FOR INJURY FROM THE USE OF THE PRODUCT DESCRIBED HEREIN.

DATE PREPARED: SEPTEMBER 25, 1986

JOHN P. SEPESI

BE SAFE

READ OUR PRODUCT  
SAFETY INFORMATION ...AND PASS IT ON  
(PRODUCT LIABILITY LAW  
REQUIRES IT)

SHELL OIL COMPANY  
PRODUCT SAFETY AND COMPLIANCE  
P. O. BOX 4320  
HOUSTON, TX 77210

DO 085378  
CONFIDENTIAL

# HAZARD WARNING WORKSHEET

152

## MATERIAL IDENTIFICATION

Supplier's Name: Kraton D1116, D1101-8G, D1101-2, D1102-2

Chemical Name: Styrene-Butadiene-Styrene Block Copolymer

## WARNING STATEMENT

CAUSES EYE, SKIN AND RESPIRATORY IRRITATION

## HEALTH HAZARD STATEMENT

Acute: Vapors and fumes produced during melt process may cause irritation of the eyes, nose and respiratory tract.

Skin contact with molten material will cause burns.

Chronic: No known chronic problems have been listed with this material.

## PERSONAL PROTECTIVE EQUIPMENT

| DEGREE OF EXPOSURE      | EYE | BODY | HAND | RESPIRATORY |
|-------------------------|-----|------|------|-------------|
| Closed System (Remote)  | A   | E    | J    | X           |
| Occasional (Infrequent) | A   | E    | J    | X           |
| Repeated and Prolonged  | B   | E    | J    | K           |
| Spills (Gross Contact)  | B   | E    | J    | K           |

### Key for Personal Protective Equipment

|                                   |                               |
|-----------------------------------|-------------------------------|
| A - Safety Glasses w/Side Shields | H - Disposable Lab Gloves     |
| B - Goggles                       | I - Impervious Process Gloves |
| C - Faceshield                    | J - Work Gloves               |
| D - Goggles and Faceshield        | K - Half Mask w/Cartridge     |
| E - Company Uniforms              | L - Full Face w/Cartridge     |
| F - Full Wet Suit                 | M - Full Face w/Supplied Air  |
| G - Impervious Apron              | X - None                      |

## HANDLING & STORAGE STATEMENT

Provide local exhaust ventilation to remove processing fumes. Thermal protective gloves may be worn when product is heated in processing. The appropriate respirator should be worn for non-routine or emergency situations.

Kraton rubber has a tendency to accumulate static charge during transport, handling and processing, provide adequate grounding. Static charge buildup can be a potential fire hazard when used in presence of flammable mixtures.



## ENVIRONMENTAL DATA SHEET

EDS NUMBER ► 2,810-1

PAGE 1

97449 (9-87)

|                |                                      |       |       |       |       |       |
|----------------|--------------------------------------|-------|-------|-------|-------|-------|
| PRODUCT ►      | KRATON(R) D1101 THERMOPLASTIC RUBBER |       |       |       |       |       |
| PRODUCT CODE ► | 46001                                | 46526 | 46705 | 46937 | 46246 | 46954 |

## SECTION I

## PRODUCT/COMPOSITION

| NO. | COMPONENT                                 | CAS NUMBER | PERCENT |
|-----|-------------------------------------------|------------|---------|
| P   | KRATON D1101                              | MIXTURE    | 100     |
| 1   | STYRENE-BUTADIENE-STYRENE BLOCK COPOLYMER | 9003-55-8  | >94     |
| 2   | TALC*                                     | 14807-96-6 | 0-1     |
| 3   | CALCIUM CARBONATE                         | 1317-65-3  | 0-5     |
| 4   | HYDRATED AMORPHOROUS SILICA               | 63231-67-4 | 1.8-5   |
| 5   | ANTIOXIDANT/STABILIZER                    |            | <1      |

\*KRATON D1101-0, D1101G-1, D1101-6 GRADES DO NOT CONTAIN COMPONENTS 2 OR 3. KRATON D1101-2 CONTAINS COMPONENT 2. D1101G-3 AND D1101G-8 CONTAIN COMPONENT 3. D1101G-1000-90-1000 CONTAINS COMPONENT 4.

## SECTION II

## SARA TITLE III INFORMATION

| NO. | EHS RQ (LBS)<br>(*1) | EHS TPQ (LBS)<br>(*2) | SEC 313<br>(*3) | 313 CATEGORY<br>(*4) | 311/312 CATEGORIES<br>(*5) |
|-----|----------------------|-----------------------|-----------------|----------------------|----------------------------|
|-----|----------------------|-----------------------|-----------------|----------------------|----------------------------|

BASED ON THE DATA AVAILABLE TO SHELL THIS PRODUCT CONTAINS NO SUBSTANCES SUBJECT TO REPORTING OR PLA REQUIREMENTS UNDER SARA TITLE III.

## FOOTNOTES

- \*1 = REPORTABLE QUANTITY OF EXTREMELY HAZARDOUS SUBSTANCE, SEC.302
- \*2 = THRESHOLD PLANNING QUANTITY, EXTREMELY HAZARDOUS SUBSTANCE, SEC 302
- \*3 = TOXIC CHEMICAL, SEC 313
- \*4 = CATEGORY AS REQUIRED BY SEC 313 (40 CFR 372.65 C), MUST BE USED ON TOXIC RELEASE INVENTORY FORM
- \*5 = HAZARD CATEGORY FOR SARA SEC. 311/312 REPORTING
  - HEALTH H-1 = IMMEDIATE (ACUTE) HEALTH HAZARD H-2 = DELAYED (CHRONIC) HEALTH HAZARD
  - PHYSICAL P-3 = FIRE HAZARD P-4 = SUDDEN RELEASE OF PRESSURE HAZARD
  - P-5 = REACTIVE HAZARD

## SECTION III

## ENVIRONMENTAL RELEASE INFORMATION

NOT APPLICABLE

## SECTION IV

## RCRA INFORMATION

PLACE IN AN APPROPRIATE DISPOSAL FACILITY IN COMPLIANCE WITH LOCAL REGULATIONS.

DO 085380  
CONFIDENTIAL

PRODUCT NAME: KRATON(R) D1101 THERMOPLASTIC RUBBER

EDS  
PAGE

2,810-1  
2

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THE INFORMATION CONTAINED HEREIN IS BASED ON THE DATA AVAILABLE TO US AND IS BELIEVED TO BE CORRECT. HOWEVER, SHELL MAKES NO WARRANTY, EXPRESSED OR IMPLIED REGARDING THE ACCURACY OF THESE DATA OR THE RESULTS TO BE OBTAINED FROM THE USE THEREOF. SHELL ASSUMES NO RESPONSIBILITY FOR INJURY FROM THE USE OF THE PRODUCT DESCRIBED HEREIN.  
-----

DATE PREPARED: MARCH 17, 1989  
-----

SHELL OIL COMPANY  
ENVIRONMENTAL AFFAIRS  
P. O. BOX 4320  
HOUSTON, TX 77210

FOR ADDITIONAL INFORMATION ON THIS ENVIRONMENTAL DATA PLEASE CALL  
(713) 241-2252

FOR EMERGENCY ASSISTANCE PLEASE CALL  
SHELL: (713) 473-9461  
CHEMTREC: (800) 424-9300

DO 085381  
CONFIDENTIAL



PRODUCT NAME: KRATON(R) D1101 THERMOPLASTIC RUBBER

## MATERIAL SAFETY DATA SHEET

MSDS NUMBER

2,810-4

PAGE 1

|                                                                              |           |                 |                         |                       |                                           |
|------------------------------------------------------------------------------|-----------|-----------------|-------------------------|-----------------------|-------------------------------------------|
| 24 HOUR EMERGENCY ASSISTANCE                                                 |           |                 | GENERAL MSDS ASSISTANCE |                       |                                           |
| SHELL: 713-473-9461 CHEMTREC: 800-424-9300                                   |           |                 | SHELL: 713-241-4819     |                       |                                           |
| ACUTE HEALTH<br>+                                                            | FIRE<br>1 | REACTIVITY<br>0 | HAZARD RATING           | LEAST - 0<br>HIGH - 3 | SLIGHT - 1<br>MODERATE - 2<br>EXTREME - 4 |
| *For acute and chronic health effects refer to the discussion in Section III |           |                 |                         |                       |                                           |

**BE SAFE**  
READ OUR PRODUCT  
SAFETY INFORMATION  
...AND  
PASS IT ON  
(PRODUCT LIABILITY LAW  
REQUIRES IT)

|                 |                                           |      |  |
|-----------------|-------------------------------------------|------|--|
| SECTION I       |                                           | NAME |  |
| PRODUCT         | KRATON(R) D1101 THERMOPLASTIC RUBBER      |      |  |
| CHEMICAL NAME   | STYRENE-BUTADIENE-STYRENE BLOCK COPOLYMER |      |  |
| CHEMICAL FAMILY | BLOCK COPOLYMER                           |      |  |
| SHELL CODE      | 46001 46526 46705 46937 46246 46954       |      |  |

| SECTION II-A |                                           | PRODUCT/INGREDIENT |         |
|--------------|-------------------------------------------|--------------------|---------|
| NO.          | COMPOSITION                               | CAS NUMBER         | PERCENT |
| P            | KRATON D1101                              | MIXTURE            | 100     |
| 1            | STYRENE-BUTADIENE-STYRENE BLOCK COPOLYMER | 9003-55-8          | >94     |
| 2            | TALC*                                     | 14807-96-6         | 0-1     |
| 3            | CALCIUM CARBONATE                         | 1317-65-3          | 0-5     |
| 4            | ANTIOXIDANT/STABILIZER                    |                    | <1      |

\*KRATON D1101-0, D1101G-1, D1101-6 GRADES DO NOT CONTAIN COMPONENTS 2 OR 3. KRATON D1101-2 CONTAINS COMPONENT 2. D1101G-3 AND D1101G-B CONTAIN COMPONENT 3.

| SECTION II-B |                 | ACUTE TOXICITY DATA |                       |
|--------------|-----------------|---------------------|-----------------------|
| NO.          | ACUTE ORAL LD50 | ACUTE DERMAL LD50   | ACUTE INHALATION LC50 |
| P            | NOT APPLICABLE  |                     |                       |

BASED UPON DATA AVAILABLE TO SHELL, COMPONENTS 1 AND 4 IN THIS PRODUCT ARE NOT HAZARDOUS UNDER OSHA HAZARD COMMUNICATION (29 CFR 1910.1200).

## SECTION III HEALTH INFORMATION

THE HEALTH EFFECTS NOTED BELOW ARE CONSISTENT WITH REQUIREMENTS UNDER THE OSHA HAZARD COMMUNICATION STANDARD (29 CFR 1910.1200).

## EYE CONTACT

BASED ON PRESENCE OF COMPONENT 2 OR 3, PRODUCT MAY CAUSE MILD MECHANICAL IRRITATION TO THE EYES.

## SKIN CONTACT

BASED ON PRESENCE OF COMPONENT 2 OR 3, PRODUCT IS PRESUMED TO BE MINIMALLY IRRITATING TO THE SKIN.

## INHALATION

BASED ON PRESENCE OF COMPONENT 2 OR 3, PRODUCT MAY CAUSE MILD MECHANICAL IRRITATION TO THE NOSE, THROAT AND RESPIRATORY TRACT.

DO 085382  
CONFIDENTIAL

PRODUCT NAME: KRATON(R) D1101 THERMOPLASTIC RUBBER

MSDS 12,810-4  
PAGE 2

**INGESTION**

PRODUCT IS GENERALLY CONSIDERED TO HAVE A LOW ORDER OF ACUTE ORAL TOXICITY.

**SIGNS AND SYMPTOMS**

IRRITATION AS NOTED ABOVE.

**AGGRAVATED MEDICAL CONDITIONS**

PREEXISTING EYE, SKIN AND RESPIRATORY DISORDERS MAY BE AGGRAVATED BY EXPOSURE TO THIS PRODUCT.

**SECTION IV**

**OCCUPATIONAL EXPOSURE LIMITS**

| NO. | OSHA<br>PEL/TWA | PEL/CEILING | ACGIH<br>TLV/TWA | TLV/STEL | OTHER |
|-----|-----------------|-------------|------------------|----------|-------|
| 2   |                 | 20 MPPCF    | 2 MG/M3*         |          |       |
| 3   | 15 MG/M3**      |             | 10 MG/M3**       |          |       |
| 3   | 5 MG/M3*        |             | 5 MG/M3*         |          |       |

TALC USED ON PRODUCT IS NON-ASBESTOS FORM. \*RESPIRABLE DUST. \*\*TOTAL DUST.

**SECTION V**

**EMERGENCY AND FIRST AID PROCEDURES**

**EYE CONTACT**

FLUSH EYES WITH WATER. IF IRRITATION OCCURS, GET MEDICAL ATTENTION.

**SKIN CONTACT**

IF CONTACT WITH MOLTEN PRODUCT OCCURS, TREAT AS FOR ORDINARY BURNS.

**INHALATION**

NOT ORDINARILY REQUIRED; REMOVE AFFECTED PERSON FROM DUSTY ENVIRONMENT.

**INGESTION**

NOT ORDINARILY REQUIRED.

**SECTION VI**

**SUPPLEMENTAL HEALTH INFORMATION**

ALL EVIDENCE INDICATES THAT LARGE POLYMER MOLECULES ARE NOT BIOLOGICALLY ACTIVE.

**SECTION VII**

**PHYSICAL DATA**

|                                                        |                                      |                                           |
|--------------------------------------------------------|--------------------------------------|-------------------------------------------|
| BOILING POINT: NOT APPLICABLE<br>(DEG F)               | SPECIFIC GRAVITY: 0.94<br>(H2O=1)    | VAPOR PRESSURE: NOT APPLICABLE<br>(MM HG) |
| MELTING POINT: NOT APPLICABLE<br>(DEG F)               | SOLUBILITY: NEGLIGIBLE<br>(IN WATER) | VAPOR DENSITY: NOT APPLICABLE<br>(AIR=1)  |
| EVAPORATION RATE (N-BUTYL ACETATE = 1): NOT APPLICABLE |                                      |                                           |
| APPEARANCE AND ODOR: SOLID, ESSENTIALLY ODORLESS.      |                                      |                                           |

DO 085383  
CONFIDENTIAL

PRODUCT NAME: KRATON(R) D1101 THERMOPLASTIC RUBBER

MSDS 2,810-4  
PAGE 3

SECTION VIII

FIRE AND EXPLOSION HAZARDS

FLASH POINT AND METHOD:  
NOT APPLICABLE

FLAMMABLE LIMITS % VOLUME IN AIR  
LOWER: N/APL UPPER: N/APL

EXTINGUISHING MEDIA  
USE WATER FOG, FOAM, DRY CHEMICAL OR CO2.

SPECIAL FIRE FIGHTING PROCEDURES AND PRECAUTIONS

MATERIAL WILL NOT BURN UNLESS PREHEATED. DO NOT ENTER CONFINED FIRE SPACE WITHOUT FULL BUNKER GEAR (HELMET WITH FACE SHIELD, BUNKER COATS, GLOVES AND RUBBER BOOTS), INCLUDING A POSITIVE PRESSURE NIOSH APPROVED SELF-CONTAINED BREATHING APPARATUS. COOL FIRE EXPOSED CONTAINERS WITH WATER.

SECTION IX

REACTIVITY

STABILITY: STABLE

HAZARDOUS POLYMERIZATION: WILL NOT OCCUR

CONDITIONS AND MATERIALS TO AVOID:

MATERIALS: AVOID CONTACT WITH STRONG OXIDIZING AGENTS. CONDITIONS: PRODUCT CONTAINS RESIDUAL UNSATURATION WHICH CAN UNDERGO EXOTHERMIC OXIDATIVE DEGRADATION. ACCUMULATION OF PRODUCT IN AREAS EXPOSED TO ELEVATED TEMPERATURES FOR EXTENDED PERIODS IN AIR MAY RESULT IN SELF-HEATING AND AUTOIGNITION. SHELL'S INTERNAL GUIDELINE IS FIVE DAYS AT 200 DEG F.

HAZARDOUS DECOMPOSITION PRODUCTS

AT PROCESSING TEMPERATURES, SOME DEGREE OF THERMAL DEGRADATION WILL OCCUR. ALTHOUGH HIGHLY DEPENDENT ON TEMPERATURE/ENVIRONMENTAL CONDITIONS, A VARIETY OF DECOMPOSITION PRODUCTS MAY BE PRESENT RANGING FROM SIMPLE HYDROCARBONS (SUCH AS METHANE/PROPANE) TO TOXIC/IRRITATING GASES (CARBON MONOXIDE/DIOXIDE, ACROLEIN, HALOGENATED COMPOUNDS, ACIDS, KETONES, ALDEHYDES). SEE SPECIAL PRECAUTIONS.

SECTION X

EMPLOYEE PROTECTION

RESPIRATORY PROTECTION

IF EXPOSURE MAY OR DOES EXCEED OCCUPATIONAL EXPOSURE LIMITS (SEC. IV) USE A NIOSH-APPROVED RESPIRATOR TO PREVENT OVEREXPOSURE. IN ACCORD WITH 29 CFR 1910.134 USE EITHER AN ATMOSPHERE-SUPPLYING RESPIRATOR OR AN AIR-PURIFYING RESPIRATOR FOR PARTICULATES.

PROTECTIVE CLOTHING

SAFETY GLASSES AND PROTECTIVE CLOTHING SHOULD BE WORN WHEN PRODUCT IS HEATED IN PROCESSING.

ADDITIONAL PROTECTIVE MEASURES

VENTILATION AS REQUIRED TO CONTROL DUST CONCENTRATION IN AIR. ADEQUATE VENTILATION AND/OR ENGINEERING CONTROLS ARE REQUIRED WHEN PRODUCT IS HEATED IN PROCESSING.

SECTION XI

ENVIRONMENTAL PROTECTION

SPILL OR LEAK PROCEDURES

SHOVEL AND SWEEP UP OR USE INDUSTRIAL VACUUM CLEANER. AVOID GENERATING DUST CLOUDS. PUT INTO CONTAINERS FOR RECLAIMING OR DISPOSAL.

WASTE DISPOSAL

PLACE IN AN APPROPRIATE DISPOSAL FACILITY IN COMPLIANCE WITH LOCAL REGULATIONS.

SECTION XII

SPECIAL PRECAUTIONS

PRACTICE GOOD HOUSEKEEPING. DO NOT ALLOW PRODUCT TO ACCUMULATE IN PROCESSING AREA.

PRODUCT CAN ACCUMULATE STATIC CHARGES WHEN HANDLED. EQUIPMENT SHOULD PROVIDE A MEANS FOR DISSIPATING ANY CHARGES THAT MAY DEVELOP.

DO 085384  
CONFIDENTIAL

PRODUCT NAME: KRATON(R) D1101 THERMOPLASTIC RUBBER

MSDS 2,810-4  
PAGE 4

IN PROCESSING, DO NOT ALLOW THE TEMPERATURE TO EXCEED 450 DEG F. MAINTAIN A FIRE WATCH IF 450 DEG F IS REACHED.

AVOID VAPORS FROM HEATED PRODUCTS. ADEQUATE VENTILATION AND/OR ENGINEERING CONTROLS MUST BE EMPLOYED IN HIGH TEMPERATURE PROCESSING TO PREVENT EXPOSURE TO POTENTIALLY TOXIC/IRRITATING FUMES.

-----  
SECTION XIII

TRANSPORTATION REQUIREMENTS  
-----

DEPARTMENT OF TRANSPORTATION CLASSIFICATION: NOT HAZARDOUS BY D.O.T. REGULATIONS

-----  
SECTION XIV

OTHER REGULATORY CONTROLS  
-----

THE COMPONENTS OF THIS PRODUCT ARE LISTED ON THE EPA/TSCA INVENTORY OF CHEMICAL SUBSTANCES.

-----  
THE INFORMATION CONTAINED HEREIN IS BASED ON THE DATA AVAILABLE TO US AND IS BELIEVED TO BE CORRECT. HOWEVER, SHELL MAKES NO WARRANTY, EXPRESSED OR IMPLIED REGARDING THE ACCURACY OF THESE DATA OR THE RESULTS TO BE OBTAINED FROM THE USE THEREOF. SHELL ASSUMES NO RESPONSIBILITY FOR INJURY FROM THE USE OF THE PRODUCT DESCRIBED HEREIN.  
-----

DATE PREPARED: SEPTEMBER 25, 1986  
-----

-----  
JOHN P. SEPESI  
-----

BE SAFE

READ OUR PRODUCT  
SAFETY INFORMATION ...AND PASS IT ON  
(PRODUCT LIABILITY LAW  
REQUIRES IT)

SHELL OIL COMPANY  
PRODUCT SAFETY AND COMPLIANCE  
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# MATERIAL SAFETY DATA SHEET

Shell

87005 (REV. 7-82)

MSDS NUMBER

2,500-1

PAGE 4 OF 4

## SECTION XI

## SPECIAL PRECAUTIONS

Product can accumulate electrostatic charges when rubbed, chafed or abraded. Equipment should provide a means for dissipating any charges may develop. Compounding of product in high shear equipment can cause the temperature to rise. DO NOT ALLOW THE TEMPERATURE TO EXCEED 450°F. MAINTAIN A FIRE WATCH IF 450°F IS REACHED.

## SECTION XII

## TRANSPORTATION REQUIREMENTS

|                                                      |                                           |                                             |                                              |                                                                         |
|------------------------------------------------------|-------------------------------------------|---------------------------------------------|----------------------------------------------|-------------------------------------------------------------------------|
| DEPARTMENT<br>OF<br>TRANSPORTATION<br>CLASSIFICATION | <input type="checkbox"/> FLAMMABLE LIQUID | <input type="checkbox"/> COMBUSTIBLE LIQUID | <input type="checkbox"/> OXIDIZING MATERIAL  | <input type="checkbox"/> NON-FLAMMABLE GAS                              |
|                                                      | <input type="checkbox"/> FLAMMABLE SOLID  | <input type="checkbox"/> POISON, CLASS A    | <input type="checkbox"/> CORROSIVE MATERIAL  | <input checked="" type="checkbox"/> NOT HAZARDOUS BY D.O.T. REGULATIONS |
|                                                      | <input type="checkbox"/> FLAMMABLE GAS    | <input type="checkbox"/> POISON, CLASS B    | <input type="checkbox"/> IRRITATING MATERIAL | <input type="checkbox"/> OTHER—Specify below                            |

D.O.T. PROPER SHIPPING NAME

Not Applicable

OTHER REQUIREMENTS

## SECTION XIII

## OTHER REGULATORY CONTROLS

FDA, OSHA, USDA, CPSC, etc.

DO 085386  
CONFIDENTIAL

The information contained herein is based on data considered accurate. However, no warranty is expressed or implied regarding the accuracy of these data or the results to be obtained from the use thereof. Vendor assumes no responsibility for injury to vendee or third persons proximately caused by the material if reasonable safety procedures are not adhered to as stipulated in the data sheet. Additionally, vendor assumes no responsibility for injury to vendee or third persons proximately caused by abnormal use of the material even if reasonable safety procedures are followed. Furthermore, vendee assumes the risk in his use of the material.

**BE SAFE**

READ OUR PRODUCT  
SAFETY INFORMATION  
... AND  
PASS IT ON

(PRODUCT LIABILITY LAW  
REQUIRES IT)

*John P. Lepore*  
Manager

SHELL OIL COMPANY  
PRODUCT SAFETY AND COMPLIANCE  
OIL AND CHEMICAL PRODUCTS  
P.O. BOX 4320  
HOUSTON, TEXAS 77210

DATE PREPARED

January 15, 1980