# Nitrovin<sup>™</sup> 457

### Thermoplastic Vulcanizate

#### Vi-Chem Corporation

#### Message:

Nitrovin<sup>™</sup> 457 is a Thermoplastic Vulcanizate (TPV) material filled with 11% mineral. It is available in North America for extrusion. Important attributes of Nitrovin<sup>™</sup> 457 are: Chemical Resistant Good Processability Heat Resistant Typical applications include: Automotive Sealing Applications

| Filler / Reinforcement       Mineral 11% Filler by Weight         Features       Gasoline Resistance         Good Colorability       Good Colorability         Good Processability       High Heat Resistance         Low Compression Set       Low Compression Set         Join Resistant       Low Compression Set         Uses       Automotive Exterior Parts         Seels       Seels         Forms       Pellets         Processing Method       Extrusion         Physical       Nominal Value       Unit         Specific Gravity       1.22       g/cm <sup>1</sup> ASTM D792         Hardness       Nominal Value       Unit       Test Method         Shore Hardness (Shore A, 15 sec)       70       ISO 37       Secific Gravity         Tensile Stress <sup>1</sup> (Yield)       1.09       MPa       ISO 37         Tensile Stores 1       ISO 31       ISO 34-1       ISO 34-1         Tensile Stress <sup>1</sup> (Yield)       1.9       %       ISO 38-1         Tensile Stress <sup>1</sup> (Yield)       1.9       %       ISO 37         Tensile Stress <sup>1</sup> (Yield)       1.9       %       ISO 37         Tensile Stress <sup>1</sup> (Yield)       1.9       %       ISO 38-1         Corpression Set (1   | General Information                     |                              |       |             |
|---|---|------------------------------|-------|-------------|
| God Colorability<br>God Processability<br>High Heat Resistance<br>Low Compression Set<br>O ResistantSet Set Set Set Set Set Set Set Set Set   | Filler / Reinforcement                  | Mineral,11% Filler by Weight |       |             |
| Good Processability       High Heat Resistance       Low Compression Set       Dil Resistant         Uses       Automotive Exterior Parts       Seals         Forms       Pelets  | Features                                | Gasoline Resistance          |       |             |
| High Hat Resistance<br>Low Compression Set<br>Oil ResistantUsesAutomotive Exterior Parts<br>SeaisFormsAutomotive Exterior Parts<br>SeaisFormsPelletsProcessing MethodFatrusionProcessing MethodNominal ValueJuditationTest MethodSpecific Gravity1.2Promessing MethodNominal ValueManinal ValueUnitSpecific Gravity1.2Specific Gravity0.1Store Hardness (Shore A, 15 sec)0Maninal ValueUnitElastomerNominal ValueInsile Etongstion <sup>2</sup> (Break)310Store Strong <sup>1</sup> (Vield)10.9Tensile Etongstion <sup>2</sup> (Break)31Grammability19Agamentation10.1Forging3Store Strong <sup>1</sup> (Shore Lattom)10.1GrammabilityNominal ValueInternation10.3Forging3.1Store Strong <sup>1</sup> (Shore Lattom)10.1Store Strong <sup>1</sup> (Shore Lattom)10.1St  |   | Good Colorability            |       |             |
| Low Compression Set<br>Ol ResistantUsesAutomotive Exterior Parts<br>SelsFormsPelletsProcessing MethodPelletsPhysicalNominal ValueUnitTest MethodSpecific Gravity1.22Vominal ValueUnitBhore Hardness (Shore A.15 sec)70EtatomersNominal ValueInitTest MethodBactomersNominal ValueInite Gravity1.02Bore Hardness (Shore A.15 sec)70Tensile Stress <sup>1</sup> Yield)1.03Inite Gravity1.03Inite Gravity1.03Inite Gravity1.03Inite Gravity1.03Inite Gravity1.03Inite Gravity1.03Inite Gravity1.04Inite Gravity1.03Inite Gravity1.04Inite  |   | Good Processability          |       |             |
| Ol ResitantUsesAutomotive Exterior Parts<br>SeasFormsAutomotive Exterior Parts<br>SeasFormsPelletsPhysicalNominal ValuePhysicalInitPhysicalNominal ValueShore HardnessIonital ValueShore HardnessNominal ValueShore HardnessNominal ValueShore HardnessNominal ValueInitTest MethodEtatomersNominal ValueInite Stenss <sup>1</sup> (vield)NoInite Stenss <sup>1</sup> (vield)NoInite Stenss <sup>1</sup> (vield)So 37Inite Stenss <sup>1</sup> (vield)So 30Inite Stenss <sup>1</sup> (vie |   | High Heat Resistance         |       |             |
| Lues       Automotive Exterior Parts<br>Sals         Forms       Pellets         Processing Method       Extrusion         Physical       Nominal Value       Unit         Pspecific Gravity       1.22       g/cm <sup>3</sup> ASTM D792         Hardness       Nominal Value       Unit       Test Method         Shore Hardness (Shore A, 15 sec)       70       ISO 868         Elastomers       Nominal Value       Unit       Test Method         Fersile Elongation <sup>2</sup> (Break)       109       MPa       ISO 37         Tersile Elongation <sup>2</sup> (Break)       310       KM/m       ISO 341         Compression Set (100°C, 22 hr)       59       %       ISO 869         Flammability       Nominal Value       Unit       Test Method         Forging       32       %       ISO 37         Forging       10.9       MPa       ISO 341         Compression Set (100°C, 22 hr)       59       %       ISO 869         Forging       03.0       %       ISO 869         Color Fastness <sup>4</sup> SingleAk/m       Minal Value       Minal Value         Loingr Set Mathod       SingleAk       Kalmand       ISO 861         Loingr Set Mathod       SingleAk  |   | Low Compression Set          |       |             |
| SalsFormsPeltsProcessing MethodExtrusionPhysicalNominal ValueUnitSpecific Gravity1.2g/cm³A STM D792HardnessNominal ValueUnitBorer Hardness (Shore A, 15 sec)7Sto 868ElastomersNominal ValueUnitEnsile Elongation <sup>2</sup> (Frield)10.9MPaTensile Elongation <sup>2</sup> (Break)310MPaGompression Sect (100°C, 22 hr)59%Forging93%Forging93%Forging93%Forging ASto 90(Back)SAE 11865to light, 12408 kj/m²040(Back)SAE 11865   |   | Oil Resistant                |       |             |
| SalsFormsPeltsProcessing MethodExtrusionPhysicalNominal ValueUnitSpecific Gravity1.2g/cm³A STM D792HardnessNominal ValueUnitBorer Hardness (Shore A, 15 sec)7Sto 868ElastomersNominal ValueUnitEnsile Elongation <sup>2</sup> (Frield)10.9MPaTensile Elongation <sup>2</sup> (Break)310MPaGompression Sect (100°C, 22 hr)59%Forging93%Forging93%Forging93%Forging ASto 90(Back)SAE 11865to light, 12408 kj/m²040(Back)SAE 11865   |   |                              |       |             |
| FormsPelletsProcessing MethodExtrusionPhysicalNominal ValueUnitSpecific Gravity1.22g/cm³HardnessNominal ValueUnitShore Hardness (Shore A, 15 sec)7ISO 868ElastomersNominal ValueUnitTensile Stress <sup>1</sup> (Yield)10.9MPaTensile Elongation <sup>2</sup> (Break)310MPaGompression Set (100°C, 22 hr)59%Forging93Nominal ValueForging93MathematicationForging6500(Back)Withto light, 1240.8 kj/m²0.480(Black)SAE J1885to light, 250 kj/m²0.480(Black)SAE J1860  | Uses                                    | Automotive Exterior Parts    |       |             |
| Processing MethodExtrusionPhysicalNominal ValueUnitTest MethodSpecific Gravity1.22g/cm³ASTM D792HardnessNominal ValueUnitTest MethodShore Hardness (Shore A, 15 sec)70ISO 868ElastomersNominal ValueUnitTest MethodFensile Stress <sup>1</sup> (Yield)10.9MPaISO 37Tensile Elongation <sup>2</sup> (Break)310%1ISO 37Gempression Set (100°C, 22 hr)59%1ISO 815FlammabilityNominal ValueUnitTest MethodFogging93%2GM 9305PColor Fastness <sup>4</sup> UnitTest Methodto light, 1240.8 kj/m²0.590(Black)SAE J1885to light, 2500 kj/m²0.480(Black)SAE J1860  |   | Seals                        |       |             |
| Processing MethodExtrusionPhysicalNominal ValueUnitTest MethodSpecific Gravity1.22g/cm³ASTM D792HardnessNominal ValueUnitTest MethodShore Hardness (Shore A, 15 sec)70ISO 868ElastomersNominal ValueUnitTest MethodFensile Stress <sup>1</sup> (Yield)10.9MPaISO 37Tensile Elongation <sup>2</sup> (Break)310%1ISO 37Gempression Set (100°C, 22 hr)59%1ISO 815FlammabilityNominal ValueUnitTest MethodFogging93%2GM 9305PColor Fastness <sup>4</sup> UnitTest Methodto light, 1240.8 kj/m²0.590(Black)SAE J1885to light, 2500 kj/m²0.480(Black)SAE J1860  |   |                              |       |             |
| PhysicalNominal ValueUnitTest MethodSpecific Gravity1.22g/cm³ASTM D792HardnessNominal ValueUnitTest MethodShore Hardness (Shore A, 15 sec)70ISO 868ElastomersNominal ValueUnitTest MethodTensile Stress <sup>1</sup> (Yield)10.9MPaISO 37Tensile Elongation <sup>2</sup> (Break)310%ISO 37Tear Strength <sup>3</sup> 31kN/mISO 34-1Compression Set (100°C, 22 hr)59%ISO 815FlarmabilityNominal ValueUnitTest MethodFogging93%GM 9305PColor Fastness <sup>4</sup> .590(Black)SAE J1885to light, 1240.8 kj/m²0.480(Black)SAE J1865  | Forms                                   | Pellets                      |       |             |
| Specific Gravity1.22g/cm³ASTM D792HardnessNominal ValueUnitTest MethodShore Hardness (Shore A, 15 sec)70ISO 868ElastomersNominal ValueUnitTest MethodTensile Stress <sup>1</sup> (Yield)10.9MPaISO 37Tensile Elongation <sup>2</sup> (Break)310%ISO 37Tear Strength <sup>3</sup> 31kN/mISO 34-1Compression Set (100°C, 22 hr)59%ISO 815FlarmabilityNominal ValueUnitTest MethodFogging93%GM 305PColor Fastness <sup>4</sup> SAE J1885to light, 1240.8 kj/m²0.590(Black).SAE J1865   | Processing Method                       | Extrusion                    |       |             |
| HardnessNominal ValueUnitTest MethodShore Hardness (Shore A, 15 sec)70ISO 868ElastomersNominal ValueUnitTest MethodTensile Stress <sup>1</sup> (Yield)10.9MPaISO 37Tensile Elongation <sup>2</sup> (Break)310%ISO 37Tear Strength <sup>3</sup> 31kN/mISO 34-1Compression Set (100°C, 22 hr)59%ISO 815FlammabilityNominal ValueUnitTest MethodFogging93%GM 9305PColor Fastness <sup>4</sup> SAE J1885to light, 1240.8 kj/m²0.590(Black).SAE J1960  | Physical                                | Nominal Value                | Unit  | Test Method |
| Shore Hardness (Shore A, 15 sec)70ISO 868ElastomersNominal ValueUnitTest MethodTensile Stress <sup>1</sup> (Yield)10.9MPaISO 37Tensile Elongation <sup>2</sup> (Break)310%ISO 37Tear Strength <sup>3</sup> 31kN/mISO 34-1Compression Set (100°C, 22 hr)59%ISO 815FlammabilityNominal ValueUnitTest MethodFoging93%GM 9305Pcolor Fastness <sup>4</sup> SAE J1885to light, 1240.8 kj/m <sup>2</sup> 0.590(Black).SAE J1960  | Specific Gravity                        | 1.22                         | g/cm³ | ASTM D792   |
| ElastomersNominal ValueUnitTest MethodTensile Stress <sup>1</sup> (Yield)10.9MPaISO 37Tensile Elongation <sup>2</sup> (Break)310%ISO 37Tear Strength <sup>3</sup> 31kN/mISO 34-1Compression Set (100°C, 22 hr)59%ISO 815FlammabilityNominal ValueUnitTest MethodFogging93%GM 9305Pcolor Fastness <sup>4</sup> SAE J1885to light, 1240.8 kj/m²0.480(Black).SAE J1865   | Hardness                                | Nominal Value                | Unit  | Test Method |
| Tensile Stress <sup>1</sup> (Yield)         10.9         MPa         ISO 37           Tensile Elongation <sup>2</sup> (Break)         310         %         ISO 37           Tear Strength <sup>3</sup> 31         kN/m         ISO 34-1           Compression Set (100°C, 22 hr)         59         %         ISO 815           Flammability         Nominal Value         Unit         Test Method           Fogging         93         %         GM 9305P           to light, 1240.8 kj/m <sup>2</sup> 0.590(Black)         SAE J1885           to light, 2500 kj/m <sup>2</sup> 0.480(Black)         SAE J1960  | Shore Hardness (Shore A, 15 sec)        | 70                           |       | ISO 868     |
| Tensile Elongation 2 (Break)310%ISO 37Tear Strength 331kN/mISO 34-1Compression Set (100°C, 22 hr)59%ISO 815FlammabilityNominal ValueUnitTest MethodFogging93%GM 9305PColor Fastness 4SAE J1885to light, 1240.8 kj/m20.480(Black)SAE J1960   | Elastomers                              | Nominal Value                | Unit  | Test Method |
| Tear Strength 331kN/mISO 34-1Compression Set (100°C, 22 hr)59%ISO 815FlammabilityNominal ValueUnitTest MethodFogging93%GM 9305PColor Fastness 4   | Tensile Stress <sup>1</sup> (Yield)     | 10.9                         | MPa   | ISO 37      |
| Compression Set (100°C, 22 hr)59%ISO 815FlammabilityNominal ValueUnitTest MethodFogging93%GM 9305PColor Fastness 4590(Black)SAE J1885to light, 2500 kj/m²0.480(Black)SAE J1960  | Tensile Elongation <sup>2</sup> (Break) | 310                          | %     | ISO 37      |
| FlammabilityNominal ValueUnitTest MethodFogging93%GM 9305PColor Fastness <sup>4</sup>   | Tear Strength <sup>3</sup>              | 31                           | kN/m  | ISO 34-1    |
| Fogging         93         %         GM 9305P           Color Fastness <sup>4</sup>   | Compression Set (100°C, 22 hr)          | 59                           | %     | ISO 815     |
| Color Fastness <sup>4</sup> to light, 1240.8 kj/m <sup>2</sup> 0.590(Black)         SAE J1885         to light, 2500 kj/m <sup>2</sup> 0.480(Black)   | Flammability                            | Nominal Value                | Unit  | Test Method |
| to light, 1240.8 kj/m²         0.590(Black)         SAE J1885           to light, 2500 kj/m²         0.480(Black)         SAE J1960   | Fogging                                 | 93                           | %     | GM 9305P    |
| to light, 2500 kj/m <sup>2</sup> 0.480(Black) SAE J1960   | Color Fastness <sup>4</sup>             |                              |       |             |
|   | to light, 1240.8 kj/m²                  | 0.590(Black)                 |       | SAE J1885   |
| Weather Resistance SAE J1976  | to light, 2500 kj/m²                    | 0.480(Black)                 |       | SAE J1960   |
|   | Weather Resistance                      |                              |       | SAE J1976   |

| 5    | 0.730                           |
|------|---------------------------------|
| 6    | 0.690(Black)                    |
| NOTE |                                 |
| 1.   | 500 mm/min                      |
| 2.   | 500 mm/min                      |
| 3.   | 500 mm/min                      |
|      | Interior XenonNo objectionable  |
| 4.   | defects                         |
|      | 2 years ArizonaNo objectionable |
| 5.   | defects                         |
|      | 2 years FloridaNo objectionable |
| 6.   | defects                         |

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