**This MotoCAP safety rating applies to:**

| | |
|---|---|
| **Brand:** | Alpinestars |
| **Model:** | Missile |
| **Type:** | Pants - Leather |
| **Date purchased:** | 20 November 2018 |
| **Sizes tested:** | 58 |
| **Gender:** | M |
| **Style:** | Sports |
| **Test code:** | P18L02 |

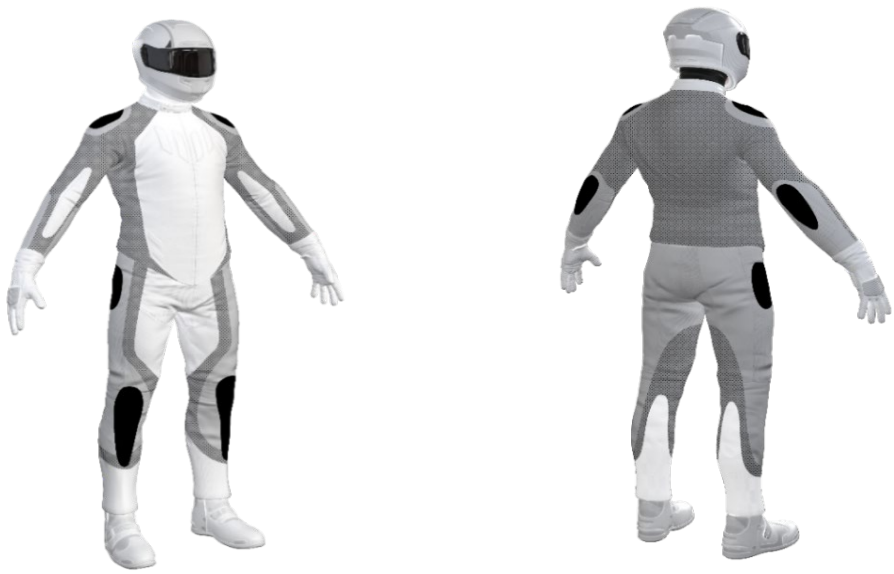
**Test Results Summary:**

| | Rating | Score |
|---|---|---|
| MotoCAP Protection Rating | ★★ | 44.1 |
| Abrasion | 9/10 | 6.67 |
| Burst | 10/10 | 1078 |
| Impact | 1/10 | 0.0 |
| MotoCAP Comfort Rating | ½ | 0.157 |
| Moisture Vapour Resistance | | 78.6 |
| Thermal Resistance | | 0.205 |
| Water resistance | N/A | N/A |

This garment is fitted with impact protectors for the knees and with pockets for aftermarket impact protectors for the hips. This garment does not provide vents to aid cooling in hot weather.

## Jacket and Pants - Crash Impact Risk Zones

This diagram is a pictorial representation of the crash impact risk Zones.



| Zone 1 | Zone 2 | Zone 3 | Zone 4 |
|---|---|---|---|
| High risk of abrasion<br>High risk of impact | High risk of abrasion | Medium risk of abrasion | Low risk of abrasion |

## Abrasion Resistance

The garment was tested for abrasion resistance in accordance with MotoCAP test protocols. The table below shows the test results for time to abrade through all layers of the materials. Calculated for each sample by Zone, type and area coverage of each material as a proportion of that Zone.

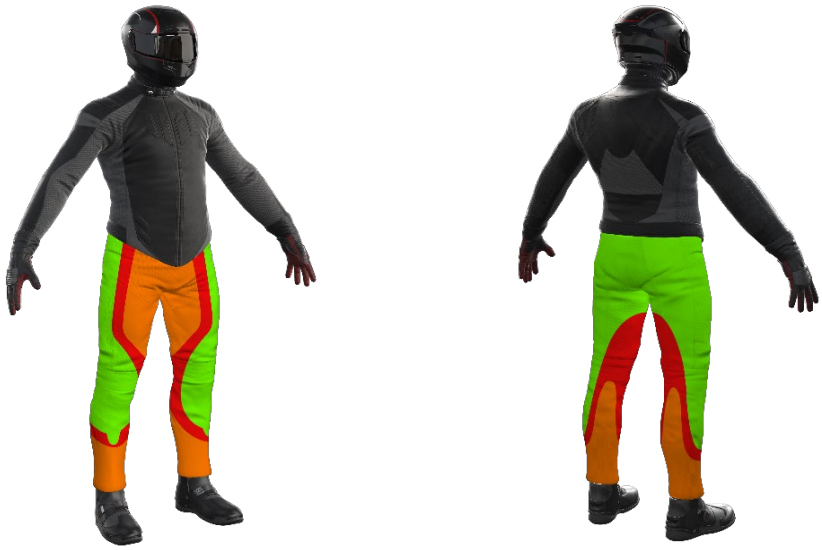
**Details of materials used in garment:**

| | |
|---|---|
| Material A: | Single layer of leather outer, foam liner and mesh inner liner |
| Material B: | Double layer of leather outer and mesh inner liner |
| Material C: | Single layer of leather outer and mesh inner liner |
| Material D: | Stretch Polyester fabric and mesh inner liner |

| Zone | Coverage (%) | Abrasion time for each test (seconds) 1 | 2 | 3 | 4 | 5 | 6 | Average (seconds) | |
|---|---|---|---|---|---|---|---|---|---|
| **Zone 1 and 2 areas (High abrasion risk)** | | | | | | | | | |
| Material A | 40% | 10.00 | 10.00 | 10.00 | 10.00 | 10.00 | 10.00 | 10.00 | G |
| Material B | 60% | 9.89 | 9.49 | 10.00 | 10.00 | 10.00 | 10.00 | 9.90 | G |
| **Zone 3 area (Medium abrasion risk)** | | | | | | | | | |
| Material C | 30% | 3.18 | 2.97 | 3.34 | 2.17 | 3.61 | 3.86 | 3.19 | G |
| Material D | 70% | 0.55 | 0.63 | 0.37 | 0.97 | 0.34 | 0.62 | 0.58 | P |
| **Zone 4 area (Low abrasion risk)** | | | | | | | | | |
| Material A | 20% | 10.00 | 10.00 | 10.00 | 10.00 | 10.00 | 10.00 | 10.00 | G |
| Material D | 80% | 0.55 | 0.63 | 0.37 | 0.97 | 0.34 | 0.62 | 0.58 | M |

Abrasion times are capped at a maximum of 10.00s.

The diagram below is a visual indication of the likely abrasion performance of the materials in each zone calculated from the data in the table above. The colour coding is based on the worst performing material in each zone.



| **Determining Criteria** | | Good | Acceptable | Marginal | Poor |
|---|---|---|---|---|---|
| High abrasion risk | Zone 1/2: | > 5.6 | 3.0 - 5.6 | 1.3 - 2.9 | < 1.3 |
| Medium abrasion risk | Zone 3: | > 2.5 | 1.8 - 2.5 | 0.8 - 1.7 | < 0.8 |
| Low abrasion risk | Zone 4: | >1.5 | 1.0 - 1.5 | 0.4 - 0.9 | < 0.4 |

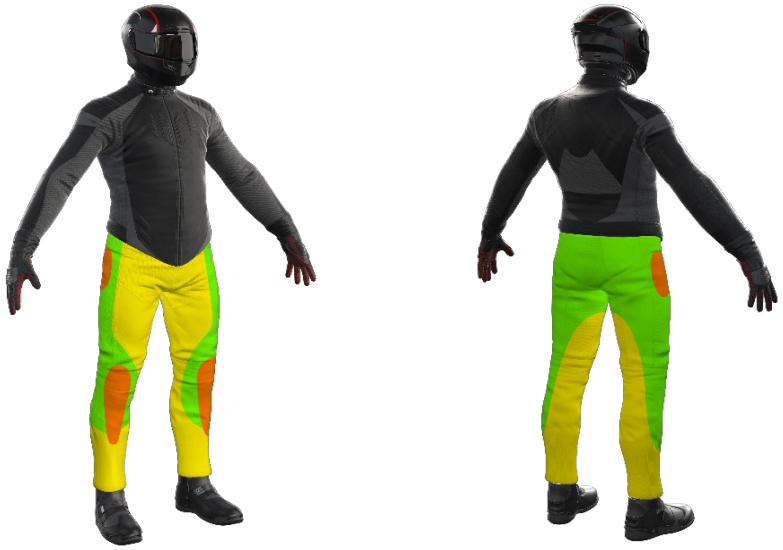
## Burst Strength

The garment's burst strength was tested in accordance with MotoCAP test protocols. The table below shows the burst pressure in kilopascals (kPA) for each sample tested by Zone and the average result for each zone.

Burst pressure (kPA)

| Area | 1 | 2 | 3 | 4 | 5 | Average | |
|---|---|---|---|---|---|---|---|
| Zones 1 & 2 | 920 | 653 | 629 | 729 | 952 | 777 | M |
| Zone EZ | 1964 | 1956 | 1192 | 1514 | 655 | 1456 | G |
| Zones 3 & 4 | 666 | 1250 | 443 | 1776 | 475 | 922 | A |

The diagram below illustrates the burst strength results in terms of the likely performance of the garment in an impact and is a pictorial representation of the data from the table above.



| Determining Criteria | | Good | Acceptable | Marginal | Poor |
|---|---|---|---|---|---|
| Burst strength | (kPa) | > 1000 | 800 - 1000 | 500 - 799 | < 500 |

## Impact Protection

The garment was tested for impact protection and coverage in accordance with MotoCAP test protocols. The table below shows the test results for each strike on each impact protector in kilonewton (kN) and their area of coverage as a proportion (%) of the Zone.

| Impact protector type | Knee | | Hip | |
|---|---|---|---|---|
| **Average force (kN)** | 20.6 | A | | P |
| **Maximum force (kN)** | 25.1 | M | | P |
| **Coverage of zone 1 area** | 130% | | 0% | |
| **Coverage of zone after displacement** | 100% | | 0% | |

**Individual test results**

| Impact force (kN) | Knee | | | Hip | No impact protector present | |
|---|---|---|---|---|---|---|
| **Strike location** | **A** | **B** | **C** | **A** | **B** | **C** |
| Impact Protector 1 | 16.7 | 22.5 | 25.1 | | | |
| Impact Protector 2 | 18.0 | 22.2 | 24.4 | | | |
| Impact Protector 3 | 14.7 | 19.2 | 22.8 | | | |

The diagram below is a visual indication of the likely performance of each impact protector calculated from the data in the table above. The colour coding is based on the worst performing score for average or maximium force for each impact zone.

| **Determining Criteria** | | Good | Acceptable | Marginal | Poor* |
|---|---|---|---|---|---|
| Impact force | (kN) | < 15 | 15 - 24 | 25 - 30 | > 30 |

* Poor may also indicate that no impact protector, or impact protector pocket is present in the garment

Areas shaded black are not considered in the impact protection ratings.

## Thermal comfort

The garment was tested for thermal comfort following the MotoCAP test protocols. The table below shows the moisture vapour resistance and the thermal resistance values obtained.

| | 1 | 2 | **Average** |
|---|---|---|---|
| Moisture Vapour Resistance - $R_{et}$ ($kPam^2/W$) | 73.3 | 84.0 | 78.6 |

| | 1 | 2 | **Average** |
|---|---|---|---|
| Thermal Resistance - $R_{ct}$ ($Km^2/W$) | 0.213 | 0.198 | 0.205 |

## Water spray and rain resistance

This garment has not been advertised as water resistant so has not been tested for water spray and rain resistance.