

High-density Conductor-laced Atibium Crystal

Abstract

High-density Conductor-laced Atibium Crystal (HECAC) armor is the most common heavy armor material used within the Occhestan republic. It consists of a chemically inert, complex high-density crystalline matrix. HECAC armor is particularly notable for the inclusion of the synthetic element [Atibium](#) which greatly increases the materials over-all strength even when it composes a small percentage of the overall armor.

HECAC armor can be found in a wide variety of grades from light armor for personal protection or for civilian use to ultra-dense battlestation hull plating. It should be noted that while certain grades of HECAC armor are available to civilians these grades are substantially less effective than those found on military vessels.

Detail

High-density Conductor-laced Atibium Crystal (HECAC) armor is the most common heavy armor material used within the Occhestan republic. It consists of a chemically inert, complex high-density crystalline matrix. HECAC armor is particularly notable for the inclusion of the synthetic element [Atibium](#) which greatly increases the materials over-all strength even when it composes a small percentage of the overall armor.

The structure of HECAC armor makes it extremely hard and causes incident light to be heavily distorted and diffracted away from the protected object. Military versions of HECAC armor possess a refractive index that varies throughout the armor, including regions of negative value. This is intended to enhance the focal performance of the [Variable-Frequency phased Array Laser \[VFHAL\]](#) system found on nearly all OR military armor and vehicles as well as increase the armor's stealth. However, a preponderance of such negative index regions also decreases the armor's performance against energy weapons. Recon armors make heavy use of these regions and this gives them a passive invisibility of a sort since they are extremely difficult to see even without any active stealth systems.

The high density of the armor (even in its relatively light grades) provides excellent protection against high-energy particle and photonic radiation and the armor is able to deflect or absorb all but the highest energy radiation (such high-energy radiation does not interact with matter much in any event). The crystal of the armor is mostly a very strong dielectric but is laced with superconductive pathways intended to diffuse energy discharges over the whole armor surface, minimizing damage from any given hit.

HECAC armor is chemically non-reactive and because of this and the extremely strong covalent bonds that make up its structure it is essentially immune to attack by micro- and nanological attacks. However, some micromachine models are available that utilize integral [Exotic Matter CDDA](#) power modules, allowing the [Integrated Micromachine Repair System](#) of armor and vehicles so equipped to repair their HECAC armor, albeit very slowly even with the incredible power level available to the enhanced

micromachines (tests proved that even ECDDA-equipped nanomachines are unable to break or repair the bonds in HECAC armor). An additional advantage of the high density of the armor and its structure is that it repairs internal damage over time, preventing it from becoming brittle after radiation exposure and eliminating the risk of stress fractures.

Note: HECAC armor blocks telepathic signals from entering the armor, but not to such transmissions leaving the armor. Some application posses systems to repeat incoming telepathic transmission so that the protected vehicle or armor can still receive such transmissions.

HECAC Classification System

HECAC armor is classified in grade based on its application, attibium content, and the specific lattice structure. The method for determining the grade is stated below.

[Application Code][Atibium rating][Latice Structure Code]

- Application code is between 0 and 9, as seen on the chart bellow

| # | Application | Examples |

0	Minimal Combat Risk	Light Personnel Armors
1	Low Combat Risk	Personnel Armors; Non-combat vehicles
2	Low Combat Risk; Moderate Protection	Hazardous Duty Non-Combat Vehicles
3	Moderate Combat Risk; Low Observability	Recon Vehicles
4	Moderate Combat Risk; Moderate Protection	Light PA
5	Moderate Combat Risk; High Protection	PA
6	High Combat Risk; High Mobility	Strike Craft; Exo Armors
7	High Combat Risk; Moderate Protection	Attack Ships; Light Guard Ships
8	High Combat Risk; Heavy Protection	Patrol Ships; Heavy Guard Ships
9	High Combat Risk; Maximum Protection	Battleships; Battlestations

- Atibium rating is a measure of the relative amount of Atibium in the armor, ranging from 0 (no atibium) to 9 (most).
- Lattice Structure Code is a identifier for the specific molecular lattice structure of the armor. It is a 2 or 3 digit code.

Examples

- 10349- The light armor found on the civilian model of the TPF-3201 Fast Courier. It is intended to provide a degree of protection but is not intended to withstand a full engagement with a military vessel. The armor of the TPF-3201 posses almost no atibium due to the synthetic materials high cost.
- 1234- The light armor of the A40 Environmental Battledress Uniform. It is a low-density, low atibium armor intended to provide a degree of protection with minimal weight.

- 4470- The original armor for the A279B2 General Purpose Power Armor. It is intended for moderate risk application, providing a fair amount of protection without excessive mass.
- 3561- The armor for the FFR-117C Reconnaissance Fighter. In order to be low-observable armor certain compromises had to be made in regards to the armor's basic structure. Higher-than-normal atibium content is included to help compensate for this.
- 5622- The armor for the A303 Assault Power Armor. It is intended for direct, frontline engagement of the enemy and as such its structure is designed with a large atibium content and a dense crystal structure to maximize its resiliency.
- 7445- The hull armor for the ASF-358 Light Attack Ship. Like most Attack Ships the ASF-358 focuses on speed and maneuverability over raw resiliency and this is reflected in its armor, which is light, relative to a Guard Ship of its size.
- 8817- The heavy hull plating found on the PTH-519 Patrol Ship is intended to stand toe-to-toe with other capital ships in a fleet action and survive for some time. It has an extremely dense structure and a very high atibium content to maximize its strength.

From:

<https://wiki.stararmy.com/> - **STAR ARMY**

Permanent link:

<https://wiki.stararmy.com/doku.php?id=materials:hecac>

Last update: **2023/12/20 18:20**

