*Military Technologies*

**Ballistic Silk**

Ballistic silk is a high grade carbon composite material that has a flexible, resin-based substrate laced with a dense carbon nanotube mesh. This is then enhanced by particulate weights usually made from metal-based waste that could not be recycled effectively. When sustaining an impact, the ballistic silk stretches and tightens around the projectile, which results in the force being twisted and dispersed across the surrounding material. The metal weights proceed to keep absorbing the projectile’s momentum, slowing the round down while possibly stopping the bullet outright before the wearer sustains any major damage. The material is quite heavy however, making it difficult to use in thick layers, though its durability as a base textile makes it appear in nearly all military attire to some level. Its inherent resistance to shrapnel also makes it serve as padding in the military, with larger sacks of it sometimes being placed over vehicles to act as extra armor.

**Dragonscale**

Dragonscale is a porous ceramic that has been impregnated with a mix of unstable crystallizing polymer and a heat-sensitive memory alloy suspension. Usually shaped as a scale, this material is lightweight and disintegrates violently under impact. The explosion serves to disperse forces from an impact, akin to reactive armor, with each scale usually being able to handle a single small-arms round. Post-impact, the polymer re-crystallizes over a duration of a few minutes, binding the ceramic together before returning to a primed state while cooling down. A durable chemical makeup and low density makes this material effective in chemical and thermal insulation, though it is often single-use when protecting from such forces, forcing the necessity of a fabric pouch. The unstable, reactive nature of it also makes it withstand travel conditions poorly, minimizing periods of deployment with it. Despite this, larger versions of it have also been made, with it serving the role of reusable reactive armor for both personnel and vehicles alike when deployed.

**Magnidar**

Magnidar is a closely guarded secret of the Vogelian Supremacy, and takes the form of being a “true” damascus steel. The material’s structure is achieved through a complex process of amalgamation and mercury-leeching on a maraging steel alloy, with the resulting internal latticework of crystals being formed from several metals including vanadium, neodymium, and cobalt. The final metal itself disperses impacts and electromagnetic assaults efficiently, with it hardening under impact as if it were a "non-newtonian" metal to repel attacks. However, the material’s corrosive resistance is poor, and thermal expansion is often unpredictable for it, making it unavailable for general use. It also underperforms in most atmospheric conditions, leading to it being commonly coated in layers of cheap resin-impregnated graphene scrap film, aiding its general environmental durability at the cost of added weakness to certain corrosives. It as such is usually a reinforcement material, avoiding the dangers of it being exposed.

**Ferrofiber**

Ferrofiber is a material that came about from constant carbon nanotube production branching off into a development enabling steel to be re-made as sleek, metallic strands. While comparable to a lesser version of damascus steel, ferrofiber outperforms normal steel in ductility and tensile strength without degrading too heavily when continuously flexed. This has enabled it to be applied in various works such as armored joints, airless tires, and more throughout the military and civilian construction.

A slight modification can be applied to ferrofiber though using the more scarce elements of chromium and vanadium, along with minor filler metal. The result is an expensive but flexible spring steel that retains high strength. While limiting the general use, this variant is often found in spring-loaded equipment that is specialized or custom-made.

**"Neon" Thermal Ceramic**

“Neon” thermal ceramic is a ceramic-based material made from a broad range of minerals which are processed in larger scale factories. This variety of components has made it purpose-built for thermal ventilation, as it can safely radiate thermal energy at most temperature ranges, minimizing the dangers of heat waste. When ventilating thermal buildup though, the material acquires lines of spectral red and orange, giving it the namesake of being neon while oft lighting up a user. This material is often reinforced to be applicable in military construction, letting it be used in most personnel equipment along with any non-engine based circuitry.

**Kyral Steel**

Kyral steel is a composite material formed from iron fibers being embedded in artificial silicates. The mix is then wrapped in ferrofiber plating, resulting in a commonly produced steel variant. While it is a freak invention from a crazed occultist researcher, this ferrous alloy has outpaced slagbags in constant usage as a foundation material comparable to concrete. Though surface durability and ductility are lacking in the initial alloy, the ease of manufacturing has made it a material that can be produced in the field without the presence of factories nearby. Reusable silica catalysts and recycled materials enable this ease of manufacturing, and with basic reinforcement, it can serve as material for a standard bunker, allowing for defensive emplacements to appear quickly in wartime even if nearby resources are scarce.

**Hazard Plastic (Hazplas)**

Hazard plastic or “hazplas” is a tetra-polyhalide protein that is usually only producible from the application of an old terror weapon. Said weapon is a halidizing gas that was relatively unknown until a now dead gang used it to kill over 2,000 people in an early urban war after the Vogelian Supremacy’s creation. This left behind masses of plasticized corpses which were comparable to mummies, giving the chance to study not only the gas, but the material itself. This in turn revealed the resulting plastic to be incredibly resistant against chemical attacks such as alkali, acidic, and oxidizing weapons. To avoid constant usage of the weapon on sentients, the insects utilized for meat produce were doubled up as hazard plastic farms, with their outer layers being regularly sprayed with the halidizing gas before the resulting hazard plastic material is harvested. With the property to also be easily fused into conventional fabrics, most materials can be made resistant to chemical degradation, with higher concentrations of hazplas being used for environmental suits on hazardous planets.

**Mark A156 Propellant**

Mark A156 propellant is a solid gunpowder mix notable for a high percentage of nitroglycerin combined with RDX to form a stable, electrically detonated explosive. This was originally tested about 50 years back, and dismissed as an unusable substance due to the extreme wear it caused to gun chambers. Advancing materials technology has now enabled the propellant to be used fully though, with the mixture emphasizing high muzzle velocity for better penetration values in modern small arms and cannons.

**Peltor Alloy**

Peltor metal is an alloy made from titanium, tungsten, and aluminum mixed together in a complex manufacturing process that sacrifices some durability to prevent shattering under heavy strains while retaining the strengths of the individual metals to a lesser degree. This metal is expensive to produce, and intended for use in vehicles only due to still relatively high density. It can be easily reinforced with ferrofiber to prevent excessive spalling when under fire, and is resistant to most forms of chemical degradation while being entirely immune to rust. Its heat capacity is about halfway to the level of pure water, and thanks to easy massing, it can sustain most forms of energy fire without issue. In terms of overall strength, it will take the penetrative power for two millimeters of steel for every single millimeter of peltor alloy to be pushed past.