

## MAX PHASE ( $Ti_3AlC_2$ )

The MAX phases are polycrystalline nanolaminates of ternary carbides and nitrides, named from their general formula of  $M_{n+1}AX_n$  (where M is a transition metal, A is an A group (mostly IIIA and IVA) element, and X is C and/or N and  $n = 1$  to 3). Titanium aluminum carbide,  $Ti_3AlC_2$ , as one of the most promising advanced ceramics belonging to a member of the so-called MAX phases

$Ti_3AlC_2$  is also a precursor material for preparation of  $Ti_3C_2$ , which is a member of the two-dimensional (2D) materials called MXene and generated by selectively etching element A from MAX phase in aqueous HF solution.

Due to its unique structure and surface chemistry, MXenes have many excellent properties, such as hydrophilicity, mechanical stability and electrical conductivity, which make them promising candidates for electrochemical energy storage materials.



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Tehran, Iran

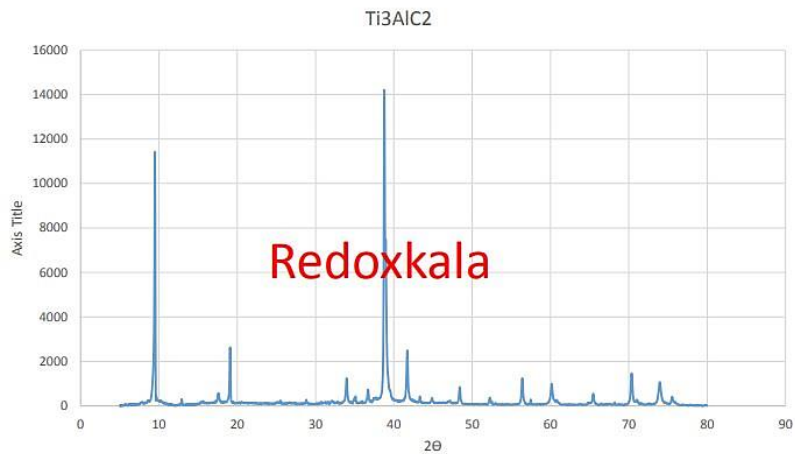
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Tel: 09304920291 - 09917523409

## SPECIFICATIONS

### MAX PHASE

Item	Value
Compound Formula	Ti <sub>3</sub> AlC <sub>2</sub>
Molecular Weight	194.605
Melting Point	2100 °C
Density	2.36 g/cm <sup>3</sup> (20 °C)
Color	grey black powder
Purity	99% min
Thermal conductivity (W/m.k)	32-37
Resistivity (μΩ.m)	0.35±0.03
Hardness (GPa)	4.2
CAS Number	196506-01-1



XRD pattern of Ti<sub>3</sub>AlC<sub>2</sub>

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