ECULAR SYNTHON IN
DER SOLVOTHERMAL

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-organic open frameworks
tate materials which offer
his thriving field has been
Fs as novel materials for
ectronics and drug release
tructed by metal ions as
ls largely depends on the
ed in the MOF formation.
able to re-assemble under

reaction' (4) is employed
ine exchange process and
zol-yl)-2H-tetrazole (L1),
le on a common platform
s and atypical mode of
by single crystal X-ray

henanthroline in aqueous
H_2O (**1**). The compound
re reveals that L2 broke-
le (L3) and 5,5'-bis-(2H-
e structure consists of two
metry, connected through
form edge shared dimer.
g L3 and, $\pi\cdots\pi$ stacking
The MOF acquired 2D
its terminal nitrogens in
Cu(phen)L2]$BF_4 \cdot H_2O$ (**2**)
point of view. The voids
s and water molecules.

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20. Ti AND Al SUBSTITUTIONS IN PHLOGOPITES FROM THE SUWALKI MASSIF-TYPE ANORTHOSITE, NE POLAND: TEMPERATURE AND STRUCTURAL CONTROLS

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Titanium-phlogopites occur in gabbro- and leuco-noritic cumulates from the Suwalki anorthosite massif-type, in the north-eastern part of Poland. These micas are generally present as discrete post-cumulus phases. The degree of Ti-enrichment in the micas is variable, and reaches a maximum value of 9.48 wt.%.The variation of composition concerns also FeO (6.85-19.63 wt.%), MgO (9.79- 20.09 wt.%), with a Mg/Fe ratio ranging from 0.471 to 0.839 *p.f.u.*, Al_2O_3 (13.17-16.75 wt.%) and K_2O (7.88-10-78 wt.%). These results have premit to discriminate three groups of samples on the basis of the Ti-content.

The substitution mechanisms for Ti and octahedral Al have been determined and suggest the presence of exchange vectors involving octahedral and tetrahedral cations. In the group of samples characterized by the lower Ti-content, the Ti-incorporation mechansism is $^{[6]}Ti^{4+} + {}^{[6]}\square = 2(^{[6]}Mg^{2+}, {}^{[6]}Fe^{2+})$, where $^{[6]}\square$ corresponds to a vacancy in octahedral coordination. In the two groups with intermediate and the higher Ti-content, the Ti-substitution mechansism is different from the first group and can be represented by the reaction: $^{[6]}Ti^{4+} + 2^{[4]}Al^{3+} = (^{[6]}Mg^{2+} + {}^{[6]}Fe^{2+}) + 2^{[4]}Si^{4+}$. Octahedral aluminium occurs only in the two groups with the lower and intermediate Ti-content. This cation is incorporated in the phlogopite network by the following reaction: $(^{[6]}Mg^{2+} + {}^{[6]}Fe^{2+}) + {}^{[4]}Si^{4+} = {}^{[6]}Al^{3+} + {}^{[4]}Al^{3+}$. In the group with the higher Ti-content, the absence of $^{[6]}Al^{3+}$-substitution is related to the high K content of the samples. In fact, this substitution is responsible for a contraction of the interlayer cristallographic site. This contaction is very limited in highly potassic micas.

In the twenty past years, several authors have proposed that deprotonation can be the most important Ti-substitution mechanism in high grade magmatic rocks. According to this reaction, Ti^{4+} substitutes divalent cations in octahedral sites. The principal effect is the loss of H^+ from the OH^- group, and thus the replacement of the OH^- group by O^{2-}. In order to verify the importance of deprotonation in the phlogopites from Suwalki, an infrared study was carried out on the micas. The relative area of the Mg_3-OH^- absorption band is compared with the Ti-content for 8 samples. The lack of correlation between the two terms permit us to consider the total absence of deprotonation in phlogopites from Suwalki.