

Mašinski fakultet Univerziteta u Nišu

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OD RUKOPISA DO NAUČNOG RADA

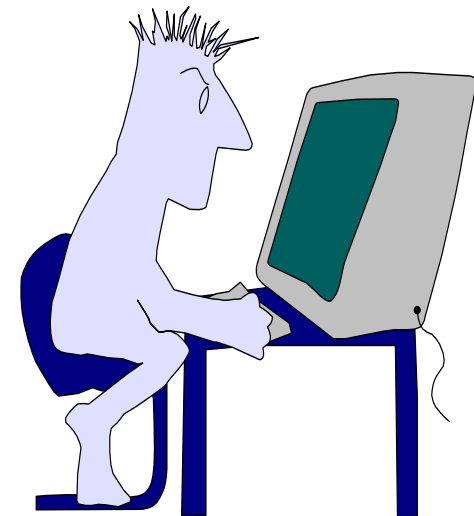


Izbor časopisa u kome će se rad štampati

- Radovi se mogu kategorizovati
 - Izvorni naučni rad / Original scientific Paper
 - Prethodno saopštenje / Preliminary Communication
 - Pregledni članak / Review
 - Strucni članak / Professional Paper
 - Izlaganje sa naučnih i stručnih skupova / Conference Paper
 - Prikazi, društvene vesti, pregled iz inostrane tehnicke literature i dr.
- Časopis svakako treba da bude iz oblasti u kojoj će veliki broj čitalaca biti u poziciji da se upozna sa vašim radom.
- Najbolji kriterijum za vrednovanje jednog časopisa u smislu benefita koji može imati istraživač je njegov **Impact Factor**.

Uobičajeni sadržaj rada

- Sadržaj rada uobičajeno treba pripremiti pre početka pisanja rada:
 - Uvod
 - Obim/opis istraživanja
 - Metod istraživanja
 - Rezultati
 - Diskusija rezultata
 - Zaključci
 - Zahvalnost
 - Literatura
- Može biti od velike pomoći ako napravite sadržaj rada pre nego počnete sa istraživanjima (eksperimentalnim, numeričkim i dr.)



Naslov

- Naslov bi trebalo da opisuje ono što je prikazano u radu, ali ne bi trebalo da bude predugačak.
- Ako se u naslovu koriste skraćenice (akronimi), moraju se objasniti, jedino u slučaju da se radi o veoma poznatim terminima onda to nije potrebno (EU, Ph.D.).
- **HYDRATION OF THE MECHANICALLY ACTIVATED MIXTURES OF PORTLAND CEMENT AND FLY ASH**

Abstrakt

- Služi čitaocima da procene da li je članak za njih zanimljiv.
- Treba dati kratak prikaz sadržaja rada iz koga se može videti:
 - Motivacija za pisanje rada,
 - Ciljevi,
 - Šta je urađeno u radu,
 - Kako je to učinjeno i validirano (kratak opis metoda)
 - Glavni rezultati,
 - Zaključak rada.
- Rezime se, kao i članak, piše u trećem licu jednine. Ne sadrži jednačine, tablice, bibliografiju i dr.
- **Treba biti kvantitativan! Što više brojčanih podataka!**
- Treba pisati jasno!
- Treba poštovati limit reči koji je predviđen.

Abstract

Fly ash (FA) can be used in the cement mixtures with certain limitations. For experimental purposes, the mixture of Portland cement (PC) and FA was used. The content of FA in the mixtures was 30% and 50%. The mechanical activation has been performed in a vibrating mill with two rings, type MN 954/3. The rings have different diameters.The volume of mill container was 2 dm³, the mass of sample 200 g and electromotor power 0.3 kW. The temperature of mill container was 80°C.....The tested samples were characterized using the XRD analysis (confirming changes at the structural level due to mechanical activation), differential thermal analysis and thermogravimetric analysis (confirming the increase of the total mass loss of the activated samples further indicating increase of reactivity of mechanically activated mixtures). **The experimental results of the compressive strength of the activated and non-activated mixtures and the changes of their specific surfaces area have proved that during the grinding process the mixture PC+FA have been mechanically activated.** It can be seen that the highest increase of compressive strength was achieved in the early period of setting, which indicates the improvement in the early hydration of the mixture.

Uvod

- Predmet rada i istraživanja
- Kratak pregled ranijih istraživanja objavljenih u stručnoj literaturi.
 - Kad se govori o poznatom predmetu, treba nastojati da uvod i pregled literature budu što kraci.
 - Pri opisu ranijih istraživanja treba literaturu citirati ne hronološkim redom nego prema temi
 - Treba izbegavati generalna zaključivanja kao što su “tema je izučavana u radovima [17] – [44]
 - Radovi koji se citiraju trebalo bi da imaju značajan doprinos istraživanju navedene problematike.
- Jasni ciljevi istraživanja.

Uvod

- [1-5] princip hidratacije, analiza pojedinih delova, ponašanje LP u smeši
- There are data supporting the fact that many types of cement with the addition of fly ash have better mechanical properties than PC. The increased resistance to chemical attack [6].
- Therefore, there are **many problems** to be resolved in order to use more fly ash in the cement mixtures. The main problem lies in the insufficient activity of the particles of FA in the hydration reactions..... [7]. Because of this, the cement pastes created by mixing of FA and clinker have worse characteristics compared to the pure PC, especially in the early period of setting [8].
- There is a series of attempts to **increase the hydration activity** of the individual components of cement and fly ash, starting **by temperature [9,10,11]** and **synthesis method [12]**, to **adding the certain activators [13]**. Only a small number of papers deal with the influence of grinding on the increase of hydration activity of the cement components, and there is even less papers on the fly ash [7]. **For this reason, this paper demonstrates how and to what extent the mechanical PC+FA mixture activation affects the hydration properties of the PC + FA mixture and its mechanical properties.**

Metod, eksperimentalni deo

- Opis primenjenih metoda ispitivanja.
- Podatke o korišćenim ispitnim uređajima.
- Uslove pod kojima je eksperiment izveden.
- Ako je autor sam razradio eksperimentalni postupak, treba ga detaljno opisati i dati jasne slike i skice konstruisanih uređaja.
- Eksperimenti i merenja moraju biti opisani tako da se rezultati uvek mogu **reprodukovati** na osnovu prikazanog postupka ispitivanja.

Eksperimentalni deo (1)

- The mixture samples with 30% and 50% of fly ash content (PC₃₀FA and PC₅₀FA) were made.
- Physical-chemical properties of FA, C, G are presented in the Table 1.
- Portland cement clinker and gypsum were brought to the particle size 95% <100µm by grinding,..... Mechanical activation of PC and cement mixtures (PC₃₀FA and PC₅₀FA) was performed in the vibrating ring elements mill (type MN 954/3).
- The activated components and mixtures were designated with the letter A: APC, APC₃₀FA, APC₅₀FA.
- The optimal time of activation was determined, Figure 1.

Ekspperimentalni deo (2)

- Standard prisms for compressive and bending strength tests were made (2, 7 and 28 days of hardening), also water consumption and setting time according to the standard testing methods (EN 197-2) are given. Table 2 presents the results of the physical-chemical characteristics of the activated and non-activated samples.
- The cement mixtures' samples were analysed on the "PHILIPS" X-ray diffractometer, model PW-1710, with curved graphite monochromator and scintillation counter.
- Monitoring of thermal changes on the samples was performed on the device for differential-thermal analysis "Netsch STA 409EP". The samples were thermally treated in the temperature range from 20°C to 1000°C.

Rezultati i diskusija rezultata

■ **Rezultati**

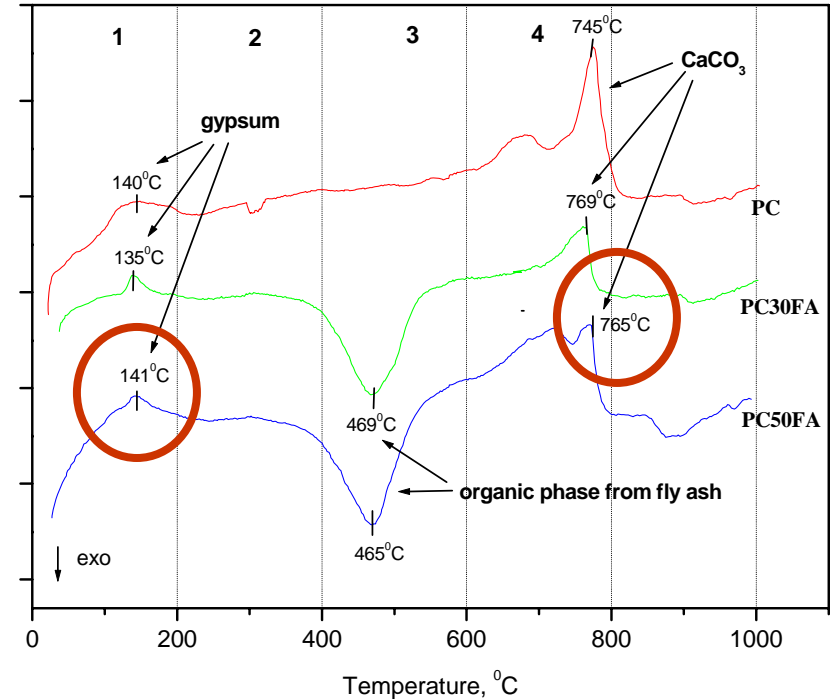
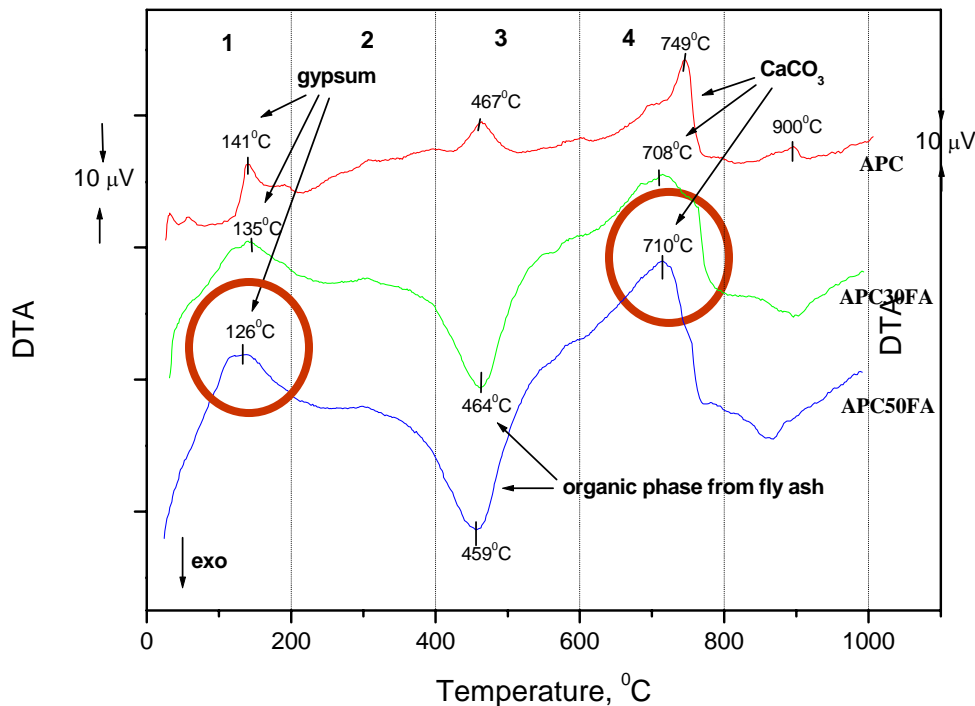
- Moraju biti pregledni: u obliku tablica ili dijagrama.
- Preporučuje se da se rezultati obrade statisticki.
- Analiza greške

■ **Diskusija**

- Analiza rezultata.
 - Upoređenje sa već publikovanim rezultatima.
 - Pronalaze se zakonitosti, komentarišu greške i tačnost merenja.
 - Daju se eventualne sugestije za daljnja istraživanja.
- U nekim slučajevima, ako to autoru odgovara, mogu se rezultati i diskusija dati zajedno, iako ih je po pravilu bolje odvojiti.

Rezultati i diskusija rezultata DTA analiza

- Dobro koncipiran rad ima najviše cetiri do pet tablica i slika



Zaključak

- Ukratko sumirati najbitnije zaključke koji se odnose na:
 - Rezultate
 - Objašnjenje rezultata
 - Metod istraživanja (ako je od značaja)
- Iz njega se mora dobiti opšta slika o vrednosti i zanimljivosti članka kao i u koju svrhu ga je moguće upotrebiti.
- Nikako ne treba uvoditi nove rezultate. Zaključak treba da se odnosi samo na ono što je već prikazano u radu.
- Iako je dobro da se negde u radu pomene mogući nastavak istraživanja, to ne treba uraditi u zaključku.

Conclusion

- During the mechanical activation of PC+FA mixture, alite, belite and quartz from the cement mixtures were activated. These components in the tested samples mostly affect the direction, rate and range of the hydration process.
- The mechanical activation of PC+FA mixture is an effective way for increasing their hydration characteristics and increase of the early compressive strength.
- The increased reactivity of the cement mixtures after the mechanical activation, determined by the XRD, DT and TG analyses, affects the course of the hydration and setting processes of cement pastes. Namely, apart from the basic reactions of alite and belite, which are accelerated, the pozzolanic reactions are accelerated and become more efficient. Thus, the increased reactivity of the active portion of fly ash, permit the addition of high concentration of fly ash in the cement mixtures (up to 50%).

Literatura

- Treba precizno pratiti traženi format citiranja referenci koji je predvideo časopis.
 - Časopisi
 - Knjige
 - Teze
 - Izveštaji
 - Verifikovane web-stranice
- Kod citiranja sopstvenog minulog rada treba se ograničiti na reference koje su tesno povezane sa posmatranim radom.

Odgovor na recenziju (1)

Ispravke

Reviewer No.1

ABSTRACT: is rewritten with **more information about grinding conditions.**

INTRODUCTION:

- Page 3: All suggestions are accepted and changed.

EXPERIMENTAL:

- C1 According to the objection referring to choice of optimal activation time, **Figure 1 has been added in the paper indicating change of specific surface at PC, FA and cement mixtures depending on period of mechanical activation of samples. An explanation for the activation time of 10 minutes has also been provided.**

RESULTS AND DISCUSSION:

- C2 Low value of compressive strength after 28 days is an implication of low value of specific surface of investigated samples which can be seen in Figure 1. **PC samples have been made in lab conditions through grinding in mill with balls to the sizes foreseen by national standards (JUS).**
- Page 7
Line 10 The setting time of 28 days has been added. The testing conditions have been explained in the standard which has already been cited in the manuscript.
- Page 7
Line 14 i 15 The value of free surface energy has not been determined, but the statements have been derived according to the literature which has been additionally cited and added in the manuscript.

Odgovor na recenziju (2)

Ispravke

Reviewer No.2

- **ABSTRACT:** First paragraph is moved into the Introduction section.
- **Page 3, 4, 5, 6** All grammar mistakes are accepted and changed.
- **Page 7** The statements are supported by literature [8].
- **Page 8** The statements mean that there was mechanical activation only of alit (but not belit).
- **Page 9** The breakage of the Si-O-Si means amorphisation of the crystal structure. To confirm the increase of total reactivity of alit, belit and quartz after mechanical activation, the explanation is given by comparing the values of diffraction maximums before (I_o) and after (I_A) mechanical activation, calculated by $I_o - I_A / I_o$.
- **Page 10** The statement is supported by literature [15]
- **CONCLUSION:** According to the suggestions, Conclusion is shortened and relevant parts are moved into Discussion section.

Odgovor na recenziju (3)

Pismo editoru

CERAMICS-Silikaty Nis,
Editorial Office

06. 03. 2007.

Dear Editor,

Please find enclosed, the revised version of our manuscript for the Journal CERAMICS-Silikaty (manuscript number 38/06) titled: **"Hydration of The Mechanically Activated Mixtures of Portland Cement And Fly Ash"**

By authors: Gordana Stefanović, Živko Sekulić, Ljubica Čojbašić, Vladimir Jovanović

All reviewers comments were very useful, and all of the reviewers comments are accepted.

We are sending you:

1. Response to Reviews
2. Original of Manuscript
3. Corrected Manuscript
4. Corrected Figures

Looking forward hearing from you soon,

Gordana Stefanović, Coresponding author

Zaključak

- Treba pisati što više.
- Dobro je pisati prvo radove za niže rangirane kategorije (konferencije, domaći časopisi).
- Iz čega se pravi osnova za razradu ideja i organizovanje eksperimentalnih istraživanja za ozbiljnije radove u međunarodnim časopisima sa visokim Impact Faktorom.



HVALA NA PAŽNJI