# LITHIUM PERCHLORATE MEDIATED AMINATION REACTION OF ALDEHYDES A NOVEL METHOD FOR SYNTHESIS OF N,N-DIALKYL- β-SILYLATED AMINES*

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ABSTRACT

β-Silylated N,N-dialkyl amines (5) were easily synthesized in good to excellent yield from aldehydes, trimethylsilyl-dialkylamines (2), and trimethylsilylmethylmagnesium chloride (4) in the presence of 5M lithium perchlorate solution in diethyl ether. The reaction of (2) with aldehyde proceed smoothly in the LiClO$_4$ to give iminium salt (3). Addition of nucleophile (4) gives the desired product.
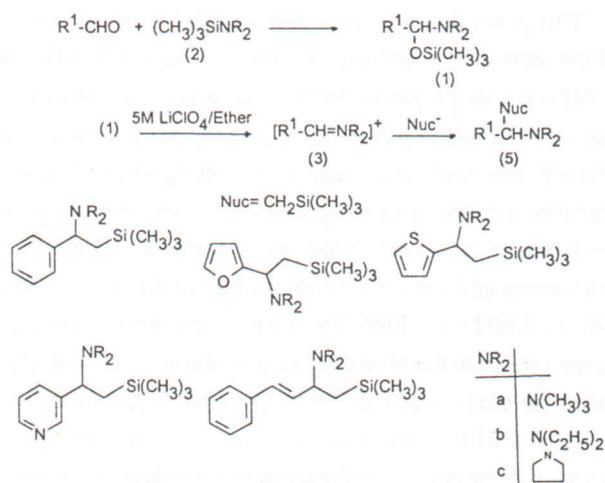
EXPERIMENTAL ANALYSIS OF THE ACCELERATION OF "β´" PRECIPITATION IN A 6061/SICp COMPOSITE*

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ABSTRACT

It is now well established that precipitation kinetics in MMC on age hardenable aluminium alloys are different from those of the unreinforced matrix and that the precipitation of semi-coherent phases is accelerated by the presence of the reinforcement. This has been observed, for example, for β precipitates in 6061/ SiC$_p$ (1-3), Θ Precipitates in Al-Cu/ SiC$_w$ (4), and for δ precipitates in 2124/ SiC$_p$ (5,6) composites. This acceleration has been clearly attributed to dislocations introduced by quench in the matrix of MMC, due to the difference between coefficients of thermal expansion of the matrix and of the reinforcement. According to experimental and theoretical studies (7-10) the dislocation density and its distribution seem to have an important influence on precipitation kinetics. The dislocation density may be evaluated theoretically using various models (11-13) which take into account the temperature drop Δt_0 between the homogenization and the quench temperature. However, dislocations may rearrange and disappear at high temperatures, so that the effective value of temperature drop Δt_e is usually less than Δt_0 . In this paper we try to define an experimental method to evaluate Δt_e by using special thermal treatments.

ABSTRACTS
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The abstracts of papers published in this magazine pertain to research projects conducted all over I.R. Iran, including those papers which have been printed previously in reputable scientific publications, and are not limited to the Sharif University of Technology. The Editor would be happy to include abstracts, in future editions of all scientific papers presented by researchers throughout the country, with a view to keeping the academia and professionals informed about research activities carried out by Iranian scientists.

COMMON MODE CONDUCTED RFI EMISSION OF AN AC/DC CONVERTER WITH SINUSOIDAL INPUT CURRENT*

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ABSTRACT

This paper discusses the modeling and the measurement of common mode conducted by Electromagnetic Interference (EMI) in a single-phase AC/DC converter with sinusodial line current. Many papers have already been published on different switching power supplies,all aiming at low frequency harmony emissions or simple converter control strategies. This paper, however, highlights common mode noise generation and emission in the radio-frequency range (10 KHz - 30 MHz) i.e. RFI (Radio Frequency Interference) in a converter which has relatively a complicated control strategy based on current mode PWM Control. The converter is composed of a diode rectifier and a conventional boost chopper. A particular software which simulates converter behavior and computes common mode current noise harmonics has been developed. Noise signal measurements are carried out by means of a LISN (Line Impedance Stabilization Network). The simulation results are compared with monitored waveforms on an experimental set-up.