

Names: _____

Section_____

Chem 226/ Fall 2009

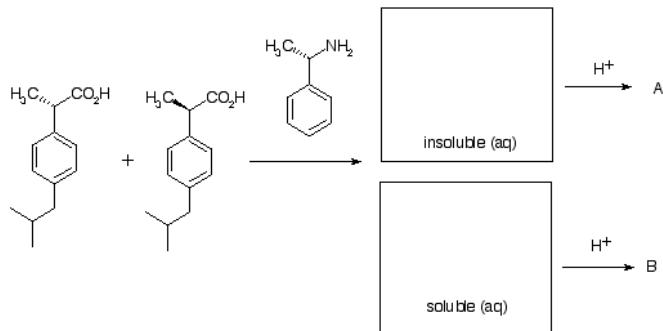
Dr. Rusay

Analysis of the Experimental Resolution of (+/-) Ibuprofen (PART III)

Refer to the Web page listed below

<http://chemconnections.org/organic/chem226/Labs/opt-rotation/ibupro-resolution-09.html>

Separation Scheme:



1) Complete the following Table.

Experimental Optical Rotation Data:

Cell path length = 10.0 cm	Temperature = 25 °C	$\lambda = 589 \text{ nm}$ (sodium D)	solvent = ethanol	$\alpha_{\text{solvent}} =$ 0°
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	Mass (g)	Volume (mL)	α	[α] (calc.)
Ibuprofen A	0.99	5.00	+10.85°	
Ibuprofen B	0.76	5.00	-7.45°	

Calculations:

$$[\alpha]_A =$$

$$[\alpha]_B =$$

Using the literature values for pure *d*- ibuprofen, $[\alpha] = +59^\circ$ and pure *l*- ibuprofen, $[\alpha] = -57^\circ$, complete the following table for ibuprofen A and B. Show your calculations for optical purity and enantiomeric excess.

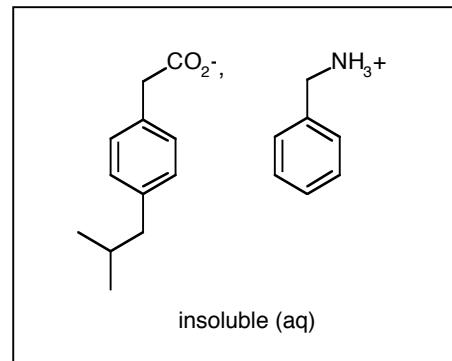
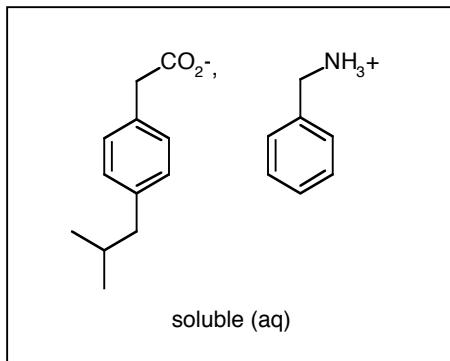
	optical purity	% R-	% S-	enantiomeric excess: (%) <i>indicate</i> <i>d</i> - or <i>l</i> -
Ibuprofen A				
Ibuprofen B				

Calculations:

Optical Purity & Enantiomeric Excess A

Optical Purity B & Enantiomeric Excess B

- 2) Complete the structures indicating stereochemistry for the two diastereomeric salts:



- 3) Complete the drawings indicating stereochemistry for ibuprofen A and ibuprofen B.

