

1079  
MW

$\text{C}_3\text{H}_3\text{ArN}$

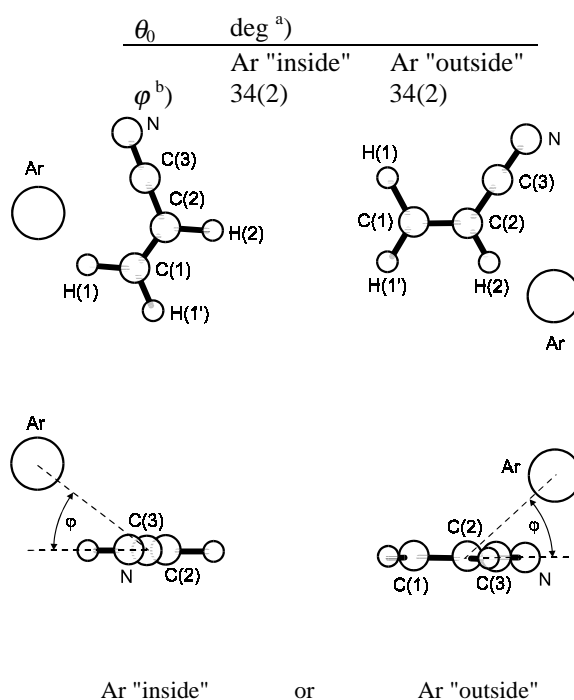
**Acrylonitrile – argon (1/1)**  
Vinyl cyanide – argon (1/1)  
(weakly bound complex)

$\text{C}_1$   
 $\text{H}_2\text{C}=\text{CH}-\text{C}\equiv\text{N} \cdot \text{Ar}$

$r_0$	$\text{\AA}^{\text{a}}$	
	Ar "inside"	Ar "outside"
Ar...H(1)	3.21	
Ar...H(2)		2.61
Ar...C(2)		3.26
Ar...C(3)	3.74	3.69

Figures: Two possible structures of the Ar · vinyl cyanide complex. The left "inner" structure is preferred over the "outer" structure since in the "outer" structure the distances of 2.61 Å and 3.26 Å for the Ar...H(2) and Ar...C(2) distances, respectively, are smaller than the sum of the van der Waals radii. For both structures the nonplanar moment is satisfied when the Ar is 34° out of the plane of the vinyl cyanide subunit.

Two sets of rotational spectra were observed and assigned to two states split by a tunneling motion.



<sup>a)</sup> Uncertainties were not given in the original paper.

<sup>b)</sup> Out-of-plane angle of Ar (see figure).

Suenram, R.D., Lovas, F.J.: J. Chem. Phys. **87** (1987) 4447.