		CLOUDY	COSTAR	MEUDON	UCL_PDR	KOSMA-tau	HTBKW	BENSCH	Aikawa	Leiden	Lee96mod	Sternberg	Meijerink
GEOMETRY													
	spherical	☑				☑		☑					
	plane-parallel, finite	☑		☑			☑			☑			
	plane-parallel, semi-infinite	☑		☑	☑		☑		☑	☑	☑	☑	☑
	circumstellar disc	☑	☑										
	ensemble of clouds					☑		☑					
DENSITY													
	homogeneous	☑	☑	☑	☑	☑	☑	☑	☑	☑	☑	☑	☑
	density-law	☑		☑	☑	☑		☑	☑	☑	☑	☑	
	time dependant	☑											
	velocity field	☑				☑		☑					
	v = const	☑				☑		☑					
	v= v(r,…)												
RADIATION													
	isotropic radiation field			☑		☑		☑					
	uni-directional radiation field	☑	☑	☑	☑		☑		☑	☑	☑	☑	☑
	combination of isotropic+illuminating star			☑									
	Habing field	☑			☑		☑			☑			☑
	Draine field	☑	☑	☑		☑	☑	☑		☑		☑	
	optional star	☑		☑									
	detailed SED	☑		☑									
	other								☑	☑	☑		
	external radiation source	☑	☑	☑	☑	☑	☑	☑	☑	☑	☑	☑	☑
	internal radiation source												
CHEMISTRY													
	stationary chemistry	☑	☑	☑		☑	☑	☑		☑		☑	☑
	time-dependant chemistry				☑				☑		☑		
	advection flow	☑											
	UMIST 95			☑	☑	☑				☑		☑	☑

		CLOUDY	COSTAR	MEUDON	UCL_PDR	KOSMA-tau	HTBKW	BENSCH	Aikawa	Leiden	Lee96mod	Sternberg	Meijerink
	UMIST 99						☑	☑				☑	
	NSM			☑					☑		☑		
	other database	☑	☑	☑		☑		☑		☑		☑	
	fixed number of species	☑	☑		☑		☑		☑		☑	☑	
	variable number of species			☑		☑		☑		☑			☑
	# of species	33	48		128		46		577		419	78	
	PAH's included	☑		☑	☑		☑	☑		☑			☑
	depletion on ice/grains included	☑	☑	☑	☑				☑				
	H2 formation on grains	☑	☑	☑	☑	☑	☑	☑	☑	☑	☑	☑	☑
	formation of other molecules on grains			☑	☑				☑				
	desorption mechanisms included		☑	☑					☑				
	thermal desorption		☑										
	photoevaporation			☑									
	CR spot heatin			☑					☑				
	grain-grain collisions			☑									
	metallicity included	☑	☑	☑	☑	☑	☑	☑		☑		☑	
ISOTOPOMERS													
	13C	☑		☑		☑		☑		☑			
	17O												
	18O			☑		☑		☑		☑			
	D	☑		☑					☑	☑			
THERMAL BALANCE													
	fixed temperature	☑		☑		☑		☑			☑	☑	
	temperature determined from energy balance	☑	☑	☑	☑	☑	☑	☑	☑	☑		☑	☑
COOLING													
	gas-grain cooling	☑	☑	☑	☑	☑	☑	☑	☑	☑		☑	☑

		CLOUDY	COSTAR	MEUDON	UCL_PDR	KOSMA-tau	HTBKW	BENSCH	Aikawa	Leiden	Lee96mod	Sternberg	Meijerink
	radiative recombination	☑				☑		☑				☑	
	chemical balance			☑									
	O lines	☑	☑	☑	☑	☑	☑	☑	☑	☑		☑	☑
	12CO rotational lines	☑	☑	☑	☑	☑	☑	☑	☑	☑			☑
	13CO rotational lines	☑		☑		☑		☑	☑				☑
	C+ line	☑	☑	☑	☑	☑	☑	☑	☑	☑		☑	☑
	CI lines	☑	☑	☑	☑	☑	☑	☑	☑	☑		☑	☑
	Si+ lines	☑		☑		☑	☑	☑				☑	☑
	OH rotational lines			☑		☑	☑	☑					☑
	H2O rotational lines			☑		☑	☑	☑					☑
	H2 rotational lines	☑		☑	☑								
	HD rotational lines	☑		☑									
	O 6300 A metastable lines	☑	☑		☑								
	CH rotational lines		☑										
	Ly a metastable lines	☑	☑		☑								
	Fe(24μ,34μ), Fe+(26μ,35.4μ)	☑					☑						
	H2 (rot-vib)	☑					☑						
HEATING													
	H2 vibrational deexcitation	☑	☑	☑	☑	☑	☑	☑	☑	☑		☑	☑
	single line approx.	☑	☑		☑		☑		☑	☑			☑
	only ν-levels, but no J					☑		☑				☑	
	full rot-vib treatment	☑		☑								☑	
	H2 dissociation	☑	☑	☑	☑	☑	☑	☑	☑	☑		☑	☑
	H2 formation	☑	☑	☑	☑	☑	☑	☑		☑		☑	
	CR heating	☑	☑	☑	☑	☑	☑	☑	☑	☑		☑	☑
	PE heating	☑	☑	☑	☑	☑	☑	☑	☑	☑		☑	
	XR heating	☑			☑		☑						
	PAH heating	☑		☑	☑		☑	☑		☑			
	photoionization	☑	☑		☑					☑			☑
	carbon ionisation heating	☑	☑		☑					☑			
	other species (Si, etc.)	☑											
	gas-grain collisions	☑											

		CLOUDY	COSTAR	MEUDON	UCL_PDR	KOSMA-tau	HTBKW	BENSCH	Aikawa	Leiden	Lee96mod	Sternberg	Meijerink
	turbulence heating	☑			☑								
	chemical balance			☑						☑			
UV TRANSFER													
	solved selfconsistently	☑	☑	☑	☑	☑	☑	☑		☑		☑	☑
	simple exponential attenuation	☑	☑	☑	☑	☑	☑	☑	☑	☑	☑		☑
	biexponential attenuation		☑									☑	
	full RT in lines			☑									
DUST													
	treatment of rad. transfer	☑		☑		☑	☑	☑		☑		☑	
	grain size distribution	☑		☑	☑	☑		☑				☑	
	extinction/scattering law	☑	☑	☑	☑	☑	☑	☑	☑	☑	☑	☑	
	albedo	☑		☑	☑					☑			
	scattering law	☑		☑	☑					☑			
H2 SHIELDING													
	shielding factors	☑	☑				☑		☑		☑		
	single line	☑			☑								☑
	detailed solution	☑		☑		☑		☑		☑		☑	
CO SHIELDING													
	shielding factors		☑		☑	☑	☑	☑	☑	☑	☑	☑	
	single line	☑								☑			☑
	detailed solution			☑						☑			
	isotope selective photodissociation			☑		☑		☑		☑			
UV PROFILE FUNCTION													
	Gaussian				☑		☑						
	Voigt	☑		☑						☑		☑	
	Box												
	other												
RAD TRANSFER IN COOLING LINES													
	escape probability	☑	☑	☑	☑	☑	☑	☑	☑	☑		☑	☑
	other												
	IR pumping	☑	☑		☑		☑			☑			
OBSERVATIONAL LINES													
	selfconsistent treatment with cooling	☑			☑								
	escape probability	☑					☑		☑	☑		☑	☑

		CLOUDY	COSTAR	MEUDON	UCL_PDR	KOSMA-tau	HTBKW	BENSCH	Aikawa	Leiden	Lee96mod	Sternberg	Meijerink
	other			☑		☑		☑					
	H2	☑		☑									
	HD			☑									
	12CO	☑		☑	☑	☑	☑	☑	☑				
	13CO	☑		☑		☑		☑					
	C18O			☑		☑		☑					
	13C18O			☑		☑		☑					
	O	☑		☑	☑	☑	☑	☑	☑	☑		☑	☑
	C+	☑		☑	☑	☑	☑	☑	☑	☑		☑	☑
	CI	☑		☑	☑	☑	☑	☑	☑	☑		☑	☑
	Si+	☑		☑			☑						
	CS			☑									
	H2O						☑						
	H218O												
	HCO+			☑		☑	☑	☑					
	OH						☑						
	SiI	☑					☑						
	SI,SII	☑					☑						
	FeI, FeII	☑					☑						
COMPUTED LINE PROPERTIES													
	resolved line profile			☑		☑	☑	☑		☑			
	continuum rad./rad transfer in UV	☑		☑									
	line center intensities	☑		☑		☑		☑					
	line integrated intensities	☑		☑	☑	☑	☑	☑		☑			☑
	optical depths	☑		☑	☑	☑	☑	☑		☑			
	Gaussian line profile	☑		☑		☑	☑	☑		☑			
	box line profile												
	turbulence included	☑		☑		☑		☑					
COLLISIONS													
	H-H	☑					☑					☑	
	H2-H	☑		☑	☑		☑			☑		☑	
	H2 - H+	☑		☑								☑	
	H2 - e	☑					☑					☑	

	CLOUDY	COSTAR	MEUDON	UCL_PDR	KOSMA-tau	HTBKW	BENSCH	Aikawa	Leiden	Lee96mod	Sternberg	Meijerink
H2 - H2	☑		☑			☑			☑		☑	
CO-H	☑	☑	☑	☑		☑			☑			☑
CO-H2	☑	☑		☑	☑	☑			☑			☑
CO-e	☑	☑		☑	☑							☑
C-H		☑		☑	☑	☑			☑		☑	
C-H2		☑		☑	☑	☑			☑			
C-e	☑			☑								
C - H2O	☑											
C+ - H	☑	☑	☑	☑		☑			☑			
C+ - H2	☑	☑	☑	☑	☑	☑			☑			☑
C+ - e	☑	☑		☑	☑	☑			☑			
OI - H	☑	☑	☑	☑	☑	☑			☑		☑	
OI - H2	☑	☑	☑	☑	☑	☑			☑		☑	☑
OI - H+	☑			☑					☑			
OI - e	☑	☑		☑		☑						
OH - H	☑											
OH - He												
OH - H2	☑				☑	☑						
H- - H	☑											
e - H2O	☑											
H - H2O	☑											
H2 - H2O						☑						
O - H2O	☑											
dust - H/H2	☑					☑						
dust-any	☑											
CO - He			☑	☑								
O - He	☑			☑								
C - He				☑								
Si+ - H	☑		☑									
HD - H			☑									
HD - H2			☑									
PAH-any	☑					☑						

OUTPUT

	CLOUDY	COSTAR	MEUDON	UCL_PDR	KOSMA-tau	HTBKW	BENSCH	Aikawa	Leiden	Lee96mod	Sternberg	Meijerink
abundance profile over (Av/depth)	☑	☑	☑	☑	☑	☑	☑	☑	☑	☑	☑	☑
column density over (Av/depth)	☑		☑		☑		☑				☑	
temperature profile over (Av/depth)	☑	☑	☑	☑	☑	☑	☑	☑	☑		☑	☑
emitted intensities	☑		☑	☑	☑	☑	☑		☑			☑
opacities at line center			☑		☑	☑	☑		☑			
heating and cooling rates over (Av/depth)	☑		☑		☑		☑				☑	
chemical rates over (Av/depth)			☑		☑		☑				☑	
excitation diagram of H2	☑		☑									

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