	CLOUDY	COSTAR	MEUDON	UCL_PDR	KOSMA	HTBKW	BENSCH	Aikawa	Leiden	Lee96mod
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	●			☑				☑		☑
UMIST 95			☑	☑	☑				☑	
UMIST 99						☑	☑			
NSM			☑					☑		☑
other database	☑	☑	☑		☑		☑		☑	
fixed number of species	☑	☑		☑		☑		☑		☑
variable number of species			☑		☑		☑		☑	
# of species	33	48		128		46		577		419
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	☑	☑	☑	☑	☑	☑	☑	☑	☑	
radiative recombination	☑				☑		☑			
chemical balance			☑							
O lines	☑	☑	☑	☑	☑	☑	☑	☑	☑	
12CO rotational lines	☑	☑	☑	☑	☑	☑	☑	☑	☑	
13CO rotational lines	☑		☑		☑		☑	☑		
C+ line	☑	☑	☑	☑	☑	☑	☑	☑	☑	
CI lines	☑	☑	☑	☑	☑	☑	☑	☑	☑	
Si+ lines	☑		☑		☑	☑	☑			

	CLOUDY	COSTAR	MEUDON	UCL_PDR	KOSMA	HTBKW	BENSCH	Aikawa	Leiden	Lee96mod
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	☑									
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	☑					☑		☑	☑	
other			☑		☑		☑			
H2	●		☑							
HD			☑							
12CO	☑		☑	☑	☑	☑	☑	☑		
13CO	☑		☑		☑		☑			
C18O			☑		☑		☑			
13C18O			☑		☑		☑			
O	☑		☑	☑	☑	☑	☑	☑	☑	
C+	☑		☑	☑	☑	☑	☑	☑	☑	
CI	☑		☑	☑	☑	☑	☑	☑	☑	
Si+	●		☑			☑				
CS			☑							
H2O						☑				
H218O										
HCO+			☑		☑	☑	☑			
OH						☑				

		CLOUDY	COSTAR	MEUDON	UCL_PDR	KOSMA	HTBKW	BENSCH	Aikawa	Leiden	Lee96mod
	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	☑					☑				
	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											
	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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