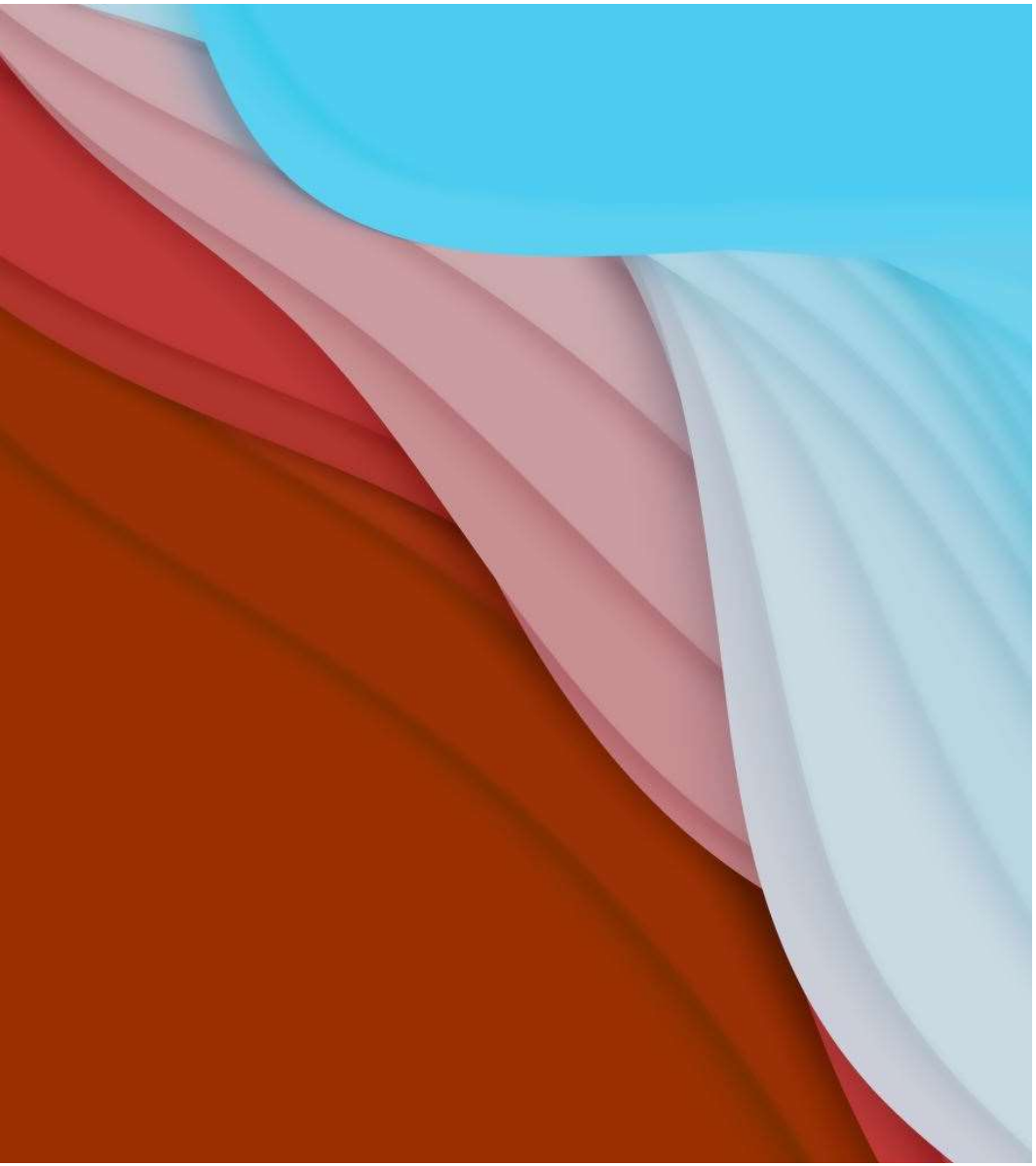


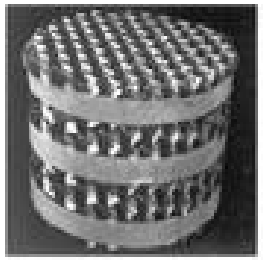
CEN416
PROCESS DESIGN II

TYPES OF PACKING

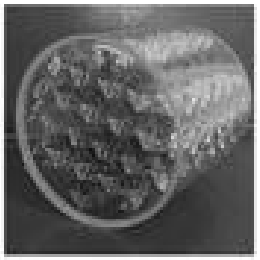
The ***principal requirements*** of a packing are that it should:

- Provide a large surface area
- Have an open structure
- Promote uniform liquid distribution on the packing surface.

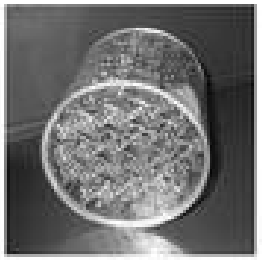
1. Structured Packings



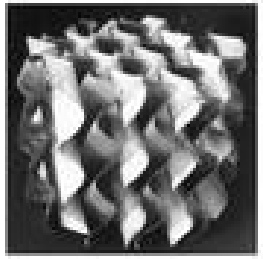
Mellapak 250
type Y
sheet metal



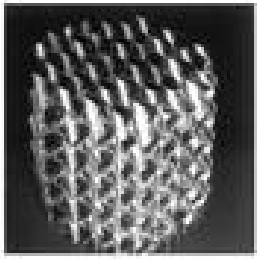
Mellapak 350
type Y
sheet metal



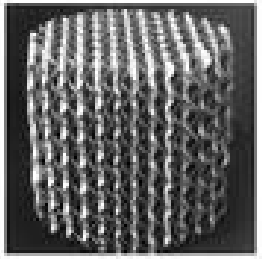
Mellapak 500
type Y
sheet metal



Montz B1-100
type Y
sheet metal

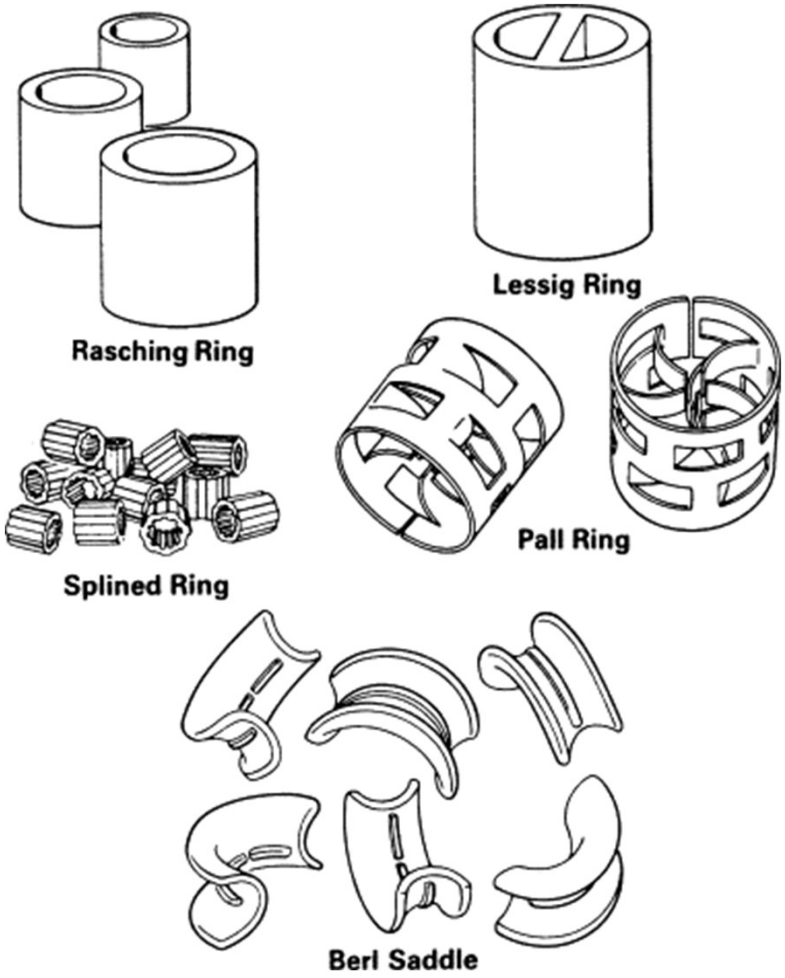


Montz B1-200
type Y
sheet metal



Montz B1-300
type Y
sheet metal

2. Random Packings



- Design data for various packings

	Size		Bulk density (kg/m^3)	Surface area a (m^2/m^3)	Packing factor $F_p m^{-1}$
	in.	mm			
Raschig rings ceramic	0.50	13	881	368	2100
	1.0	25	673	190	525
	1.5	38	689	128	310
	2.0	51	651	95	210
	3.0	76	561	69	120
Metal (density for carbon steel)	0.5	13	1201	417	980
	1.0	25	625	207	375
	1.5	38	785	141	270
	2.0	51	593	102	190
	3.0	76	400	72	105
Pall rings metal (density for carbon steel)	0.625	16	593	341	230
	1.0	25	481	210	160
	1.25	32	385	128	92
	2.0	51	353	102	66
	3.5	76	273	66	52
Plastics (density for polypropylene)	0.625	16	112	341	320
	1.0	25	88	207	170
	1.5	38	76	128	130
	2.0	51	68	102	82
	3.5	89	64	85	52
INTALOX® saddles ceramic	0.5	13	737	480	660
	1.0	25	673	253	300
	1.5	38	625	194	170
	2.0	51	609	108	130
	3.0	76	577		72

- **Raschig rings**, are one of the oldest specially manufactured types of random packing, and are still in general use.

- **Pall rings** are essentially Raschig rings in which openings have been made by folding strips of the surface into the ring. This increases the free area and improves the liquid distribution characteristics.

- **Berl saddles** were developed to give improved liquid distribution compared to Raschig rings.

- The choice of material will depend on the nature of the fluids and the operating temperature.

- Where the column operation is likely to be unstable, metal rings should be specified as ceramic packing is easily broken.

REFERENCES

1. Sinnot, R.K. 1999, Coulson's & Richardson's Chemical Engineering, Volume 6, Chemical Engineering Design, ButterWorth Heinemann, Oxford.

2. Turton R., Bailie R.C., Whitin W.C., Shaeiwitz J.A. 1998, Analysis, Synthesis and Design of Chemical Processes, Prentice Hall, New Jersey.