

# Karenz MOI

# Karenz AOI

# Isocyanate Monomers

## APPLICATIONS

UV curing | Copolymerization

adhesives, paintings, coatings, ink, resist resin, electrical materials, etc.



## Introduction

Karencz is our highly specialised product family to support radcure technology.

Our unique line-up of products facilitates the performance enhancement of your materials or formulations for radiation curing of paints, coatings and adhesives in a wide range of applications.

Hybrid monomers of different functional groups of isocyanate (NCO) and double bond in one molecule as well as multifunctional secondary thiol monomers will expand the possibilities to achieve a more efficient and easy design and synthesis for your products, typically for polymers (oligomers).

We believe that Karencz™ will help to develop new products with higher performance and lower environmental damage.

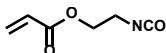
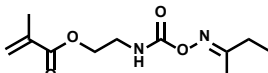
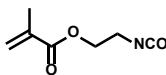
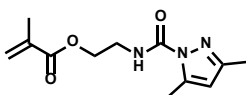
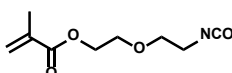
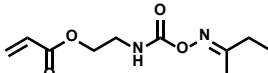
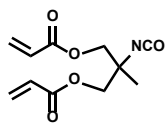
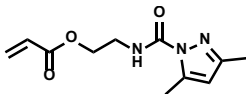
## About

## Multifunctional Isocyanates

Karencz AOI / Karencz MOI are high purity, functional monomers characterized by having both a ethyl-( meth) acrylate group and an isocyanate group. Within this product group, a variety of derivatives are available in order to match your needs.

- Easy resin design
- Polymers /Oligomers with pendant NCO or ( meth) acryloyl group
- Reduction of reaction steps
- Reduction of solvent use (VOC)
- High UV sensitivity
- Sharp molecular weight distribution
- Low viscosity polymer synthesis
- Reduction of production cost

Using these isocyanate monomers, easy and flexible molecular design is possible. They can be used for various purposes, resin based materials, including paint coating, surface modification, adhesives, printing, photosensitive and many others.

Isocyanate series	Blocked Isocyanate series
Karencz AOI 	Karencz MOI-BM 
Karencz MOI 	Karencz MOI-BP 
Karencz MOI-EG 	Karencz AOI-BM 
Karencz BEI 	AOI-BP 

## Physical properties

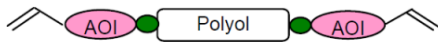
	Karencz MOI	Karencz AOI
Chemical name	2-Isocyanatoethyl methacrylate	2-Isocyanatoethyl acrylate
CAS no.	30674-80-7	13641-96-8
Purity (%)	min 97	min 97
Specific gravity (25°C)	1.10	1.13
Viscosity (mPa s, 25°C)	1.75	1.74
Appearance	Colourless or slightly yellow liquid	Colourless or slightly yellow liquid
Odour	Pungent	Pungent
Regulatory	EU (REACH 1-10 MT/Y) US (TSCA, no SNUR) Japan (ENCS) P.R. China (IECSC) S. Korea (ECL) R.O.C. Taiwan (ECN)	EU (REACH 1-10 MT/Y) US (TSCA, no SNUR) Japan (ENCS) P.R. China (IECSC) S. Korea (ECL) R.O.C. Taiwan (ECN)

\*Information on other isocyanates upon request

**Merits of isocyanate monomers in synthesis**  
Easy, high-purity and reduced cost

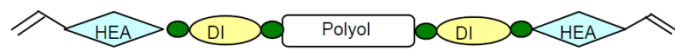
**1. Synthesis of acrylate by polyol**

1 step  
(Polyol + AOI)

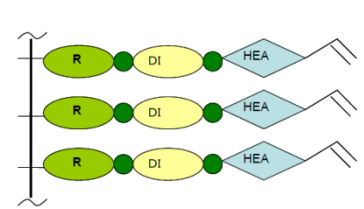
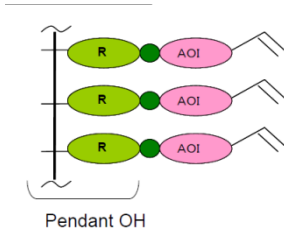


vs

2 steps  
(Polyol – diisocyanate – hydroxy acrylate)



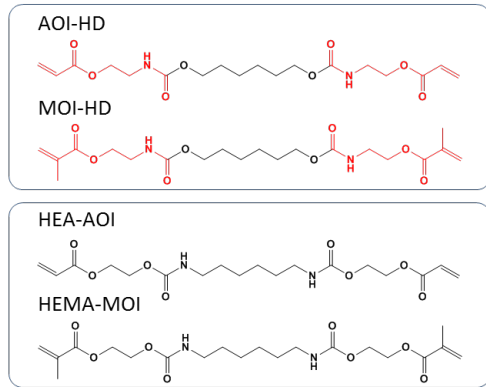
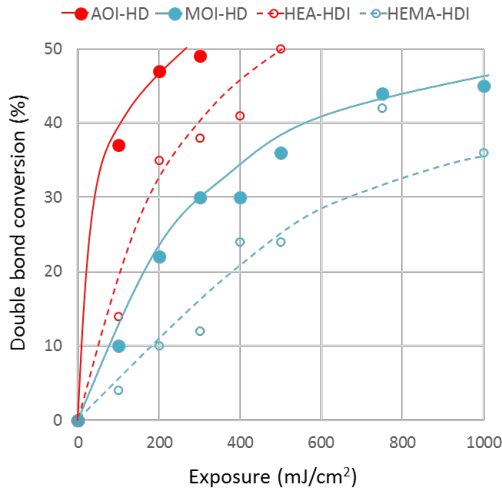
**2. Synthesis of acrylate by polymers with pendant alcohol**



● Urethane bond

**Merits of isocyanate monomers in curing**

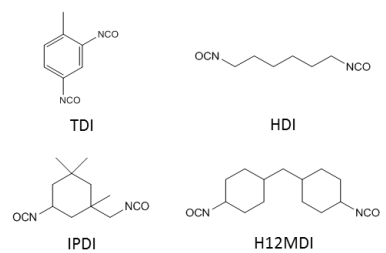
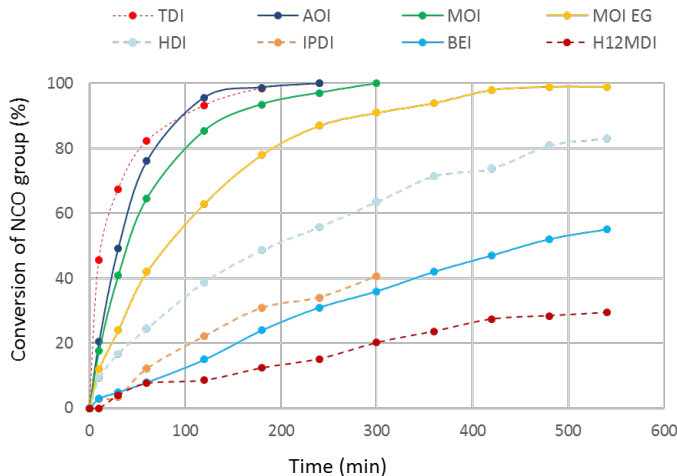
The UV curing rate of AOI and MOI show high activity compared to HEA-HDI and HEMA-HDI.



MOI/AOI are faster curing rate than other (meth)acrylate.

**High activity**

The reactivity of MOI/AOI is higher than aliphatic isocyanates:  
Aromatic compound > AOI/MOI > Aliphatic NCO



**Resonac Corporation**

Specialty Chemicals Department  
13-9 Shiba Daimon 1-chome, Minato-ku,  
Tokyo, 105-8518  
Japan  
Tel: +81 3 6402 5080  
URL: [www.resonac.com](http://www.resonac.com)  
Karezn: [www.karezn.jp/en](http://www.karezn.jp/en)

**New address from July 2023**

24<sup>th</sup> to 26<sup>th</sup> floors of Tokyo Shiodome  
Building  
9-1, Higashi-shimbashi 1-chome, Minato-ku,  
Tokyo 105-7325, Japan

**Resonac Europe GmbH (Sales Branch )**

Konrad-Zuse-Platz 3  
81829 Munich  
Germany  
Tel: +49 89 93 99 62 0  
URL: [eu.resonac.com](http://eu.resonac.com)

**Resonac America, INC.**

2150 North First Street,  
Suite 350, San Jose,  
CA 95131,  
U.S.A.  
Tel: +1 408 873 2200  
URL: [am.resonac.com](http://am.resonac.com)

**KOREA SHOWA CHEMICALS CO.**

AIA TOWER 9F 16, Tongil-ro 2-gil, Jung-gu,  
Seoul 04511,  
Korea  
Tel: +82 2 3454 1831  
URL: [www.sdkksc.co.kr](http://www.sdkksc.co.kr)

**Resonac (Shanghai) Corporation**

19F, Lee Gardens Shanghai No.668 Xinzha  
Road, Jing An,  
Shanghai, PRC 200041,  
China  
Tel: +86 21 6217 5000

**Resonac Asia Pacific SINGAPORE (PTE ) LTD**

4 Shenton Way #16-02/06  
SGX Centre 2, 068807  
Singapore  
Tel.: +65 6223 1889  
URL: [ap.resonac.com](http://ap.resonac.com)

**CAUTION**

The information contained herein is based upon data considered true and accurate. However, Resonac Corporation accepts no responsibility or risk which may result from the handling and use of products or for infringement of any patent.

For use in medical, pharmaceutical and/or body contact application please check with your sales office for further details.

Revised: April 2023  
Issued by Resonac Corporation  
Specialty Chemicals Department